# MONTHLY WEATHER REVIEW.

CHARLES F. MARVIN, Chief U. S. Weather Bureau.

Vol. 41.

DECEMBER, 1913.

No. 12.

Editor, P. C. DAY, Climatologist and Chief of Division.

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# CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 1, NORTH ATLANTIC STATES.

Prof. WILFORD M. WILSON, District Editor.

#### GENERAL SUMMARY.

December was much milder than usual, and, in spite of the cold week at its close and a few days of stormy weather, it has been considered a remarkably pleasant month. The favorable open weather gave great opportunity in the southern part of the district for outdoor activities, which are usually greatly hindered during the last month of the year. Precipitation was generally less than usual in December, and the storms were of little consequence except the one that occurred on the 26th, when heavy snow fell throughout the Northern States and destructive gales swept the coast of New Jersey.

The following table exhibits the leading features of meteorological interest for the various sections of the district:

*	7	Cemper	atur	e.		Precipit	ation.		nui	erage mber f—
States or parts of States within District No. 1.	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Rainy days.	Clear days.
New England New York	31.3 31.6 34.5 37.7	+4.5 +4.7 +4.3 +4.6	62 60 63 63	-23 -15 - 7 -11	3. 24 2. 55 2. 84 3. 03	-0.07 -0.73 -0.30 -0.81	5. 64 5. 28 4. 49 4. 59	1.86 0.74 1.11 1.47	7 7 7 7	13 12 10 13
and District of Co- lumbia	39. 5 36. 0 39. 6	+4.4 +4.2 +4.2	72 68 71	9 3 14	2. 41 2. 58 3. 39	-0.98 -0.23 -0.80	3, 36 3, 25 3, 39	1. 43 1. 35 1. 13	6 6 4	13 11 13

#### TEMPERATURE.

The year just closed has been one with an unusually high average temperature, the month of December being one of the most abnormal of the year, giving mean temperatures more than 4° above the seasonal average. The weather in December did not assume the characteristics of winter until after Christmas, when a very marked change to colder occurred.

There were no exceptionally warm days in the month, but the temperature averaged above the normal on all but about eight days. The highest temperature occurred on many different dates in different sections, the highest reported being 72° at Frostburg, Md., on the 7th.

Temperatures of zero or below, except in a very few instances, were confined to the last week; such temperatures occurred at nearly all stations farther north than Massachusetts, at some others in New York and Pennsylvania, and at Layton, N. J., about the 28th. The lowest observed was -23° at Van Buren, Me., on the 29th.

## PRECIPITATION.

This element of the month's weather demands little comment, since precipitation of consequence occurred on only about four dates, the 7th, 8th, 24th, and 26th at the North and the 7th, 23d, 24th, 25th, and 26th in some other

sections. A little more than the normal amount of precipitation occurred at some thirty stations in New England, but in other States the amount was less than normal at very nearly all stations. Precipitation was rather evenly distributed, the greatest total for the month being 5.64 inches at Kingston, R. I., and the least 0.74 at Haskinville, N. Y., while the number of stations receiving less than 2 inches was small.

#### SNOWFALL.

As the dates of the principal storms were also the dates of the coldest weather, generally speaking, the snowfall proved to be nearly as much as usually occurs in December, notwithstanding the prevailing high temperatures and the general deficiency in precipitation. Snowfall averaged about 21 inches in Vermont, 17 in Maine, 15 in New Hampshire, 9 in New York, 7 in Pennsylvania, 4 in West Virginia, and less than 1 inch in other sections. The greatest daily snowfall in the district was 18 inches at Hanover, N. H., on the 8th.

#### STORM OF THE 26TH.

The following rather abridged account of the storm of the 26th has been prepared from the reports that have been examined:

With 13 lives lost and millions of dollars of damage done to property, the terrific wind, rain, sleet, and snow storm, which began Christmas night and swept over five States, abated early on the 27th, leaving a cold snap in its wake. The masters of the A. C. Rose and the Undaunted, coal barges, with eight seamen, lost their lives when the barges foundered off Forked River, N. J. Two men died of exposure and were found in roads near Trenton, N. J. A workman was drowned in the East River when his rowboat was swamped. The full force of the storm fell upon that portion of New Jersey which reaches out into the ocean like an elbow. Records at Long Branch show that the wind attained a velocity of 123 miles an hour, the highest ever recorded by the Weather Bureau at that point. Seabright, N. J., was the plaything of the ocean. Waves whipped by the gale tore away supposedly floodproof bulkheads, smashed bathhouses, washed away or undermined fishermen's cottages, tore away portions of two big summer hotels, inundated the main streets, and buried railroad tracks under 18 inches of sand, brick, and rock.

## MISCELLANEOUS.

There was very little change in river stages during the month and the gage readings were comparatively low.

The percentage of the possible sunshine averaged 50 according to the records of 13 regular Weather Bureau stations. Sunshine was most abundant near the coast and least over northeastern Pennsylvania and adjacent parts of New York. A record of 188 hours of sunshine was obtained at Atlantic City, N. J., and of only 60 at Binghamton, N. Y.

Table 1.—Climatological data for December, 1913. District No. 1, North Atlantic States.

			years.	Temp	perature	, in	degr	ees Fal	hrenl	heit.	Pre	cipitation	, in in		days, re.		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind c	Observers.
Maine.																				V-1
Bar Harbor. Cornish Eastport Fairfield Farmington. Gardiner. Greenville. Houlton Lewiston. Madison Millinocket. North Bridgton Orono. Patten Pemaquid. Portland Presque Isle. Rumford Falls Van Buren. Winslow	York Washington Somerset Frenklin Kennebec Piscataquis Aroostoek Androscoggin Somerset Penobscot Cumberland Penobscot do Lincoln Cumberland Aroostook Oxford Aroostook	362 185 257 386 450 129 550	27 58 41 28 16 21 9 11 39 10 10 20 44 11 0 42 4 20 8 18	22. 2 23. 7 28. 3 24. 0 23. 8 29. 4 28. 0 20. 6d 31. 9 20. 6	+ 3.1 + 5.7 + 4.3 + 5.5 + 7.8 + 5.2 + 4.9 + 5.7 + 6.7 + 4.8 + 5.7	50 51 44 53 51 45 45 52 50 48	8 14 14† 14 15 14 14 18	- 7 - 6	29 29 31 29 29 28 28 29 29 30 29 29 29 29 29 29 29 29 29 29 29 29 29	37 42 29 31 34 37 29 36 28 37 36 34 40 37 4 28 34 40 37 34 34 37 36 36 37 36 36 37 36 36 37 36 36 37 36 36 36 37 36 36 36 36 37 36 36 36 36 36 36 36 36 36 36 36 36 36	2.70 4.43 4.01 4.03 2.96 2.87	+ 0.01 + 0.13 - 0.83 + 0.09 - 0.37 + 0.47 + 1.24 + 0.37 + 0.39 + 0.82 + 1.01 - 0.56 - 0.75 - 0.26 + 0.24	1.80 1.51 1.60 1.18 1.04 1.73 1.12 1.10 1.25 1.50 0.80 1.70 0.90 1.11 2.00 1.86	5. 2 23. 0 7. 5 11. 5 19. 0 16. 0 29. 5 17. 0 20. 5 16. 2 17. 0 10. 0 15. 0 20. 5 31. 2 27. 0 20. 5 31. 2 31. 5	5 7 16 3 6 6 7 9 5 6 6 6 10 5 5 5 5 7 10 10 10 10 10 10 10 10 10 10 10 10 10	16 13 6 7 10 14 11 12 17 12 6 11 16d 12 13 13 10 14	4 8 11 4 8 7  8 9 0 2 15 9 5 4 2 15 9 5 4	11 10 14 20 13 10 12 10 14 17 10 11 6d 15 16 10 18 5	8. 6. 8. w. w. n. w. n. w. n. w. n. w. n. w. n. e. n. e. n. w.	William Miller. T. H. West. U. S. Weather Bureau. E. F. Parker. State Normal School. Samuel D. Soule. U. S. Weather Bureau. Bangor & Aroostook R. R. Union Water Power Co. William Jardine. F. C. Bowler. G. E. Chadbourne. Department of Physics. Bangor & Aroostook R. R. Bristol High School. U. S. Weather Bureau. E. M. Libby. Charles A. Mixer. J. M. Thomas. Hollingsworth & Whitney Cd.
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TABLE 1.—Climatological data for December, 1913. District No. 1—Continued.

			years.	Temp	erature	, in c	legre	es Fah	renh	eit.	Prec	lpitation	, in inc	ehes.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	<u>a</u> .	Number of rainy day 0.01 inch or more.	2	day	oloudy days.	vind n.	Observers.
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Table 1.—Climatological data for December, 1913. District No. 1—Continued.

			years.	Temp	erature	, in	degre	es Fah	rent	neit.	Prec	ipitation	, in in	ehes.	days,		Sky.		dires	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
Pennsylvania—Contd.																		10		Prod. W. C. Owener
ewisburg .ook Haven .farionfauch Chunk .fiffintown .filford .fontrose .funcy Valley .hiladelphia .oocono Pines .ceading .cranton .elinsgrove .pring Mount .tate College .troudsburg .owanda .vest Chester .Villiamsport	Franklin Carbon. Juniata Pike Susquehanna. Sullivan Philadelphia Monroe Berks. Lackawanna Snyder Montgomery Center Monroe Bradford Chester	450 560 640 634 445 455 1,658 519 117 1,662 280 805 455 1,51 1,91 425 754 455 530	39 25 9 24 9 10 9 2 42 42 11 40 13 25 24 25 3 18 59 23	37. 4 35. 2 35. 7 31. 6 30. 2 31. 2 40. 3 30. 4 37. 8 34. 7 34. 0°	+ 3.5 + 3.1 + 4.9 + 4.6 + 5.6 + 5.0 + 2.7 + 2.9 + 2.7 + 4.6 + 4.8	57 55 61 56 58 55 48 53 58 50 56 52 58 52 54 52 54 57 59	13 5† 5 6 13† 14 7† 5 13 13 13 14† 5 3 13	- 2 5 13 6 6 - 1 - 2 - 1 23 0 16 7 5 - 3 - 5 17 8	28 28 28 28 29 28 28 28 28 28 28 28 28 28 28 28 28 28	40 30 33 36 32 44 42 23 34 28 35 43 29 32 50 30 33	2.90 3.25 3.92 3.03 3.47 1.69 3.36 2.56 2.16 3.05 2.64 2.84	+ 0.11 - 0.41 - 0.30 - 0.34 - 0.45 - 0.24 - 0.75 - 0.04 - 0.33 - 0.33 - 0.33 - 0.12	1.76 1.15 1.07 1.19 1.01 1.63 0.50 1.14 1.16 1.48 0.78 0.97 1.34 1.26 1.36	7.5 13.0 1.0 4.2 4.0 6.5 12.0 9.7 T. 1.3 4.3 5.0 11.6 2.0 0.12.9 0.5 8.0	578858558 5585577710 1055	12 1 12 16 14 10 9 17 9 6 4 4 5 7  14 10 8 13	3 14 5 3 3 16 11 11 10 9 10  10 6 13 3	16 16 14 12 14 5 11 11 10 14 17 17 17 14 	W. W. II. W. NW. NW. NW. NW. S. S. W. SW. NW. NW. NW.	Prof. W. G. Owens, Prof. J. A. Robb. Hon. C. B. Hege. F. C. Wintermute. Wellington Smith. Mrs. Alla Doughty. Silas Jagger. S. P. Worthington. U. S. Weather Bureau. Carl Majer. U. S. Weather Bureau. Do. J. M. Boyer, C. E. James F. Smith. Prof. Wm. Frear. J. Clyde Le Bar. Hiram E. Bull, C. E. J. C. Green, D. D. S. John R. Mundy.
sbury Park	Atlantic	22 16	25 40	39.5	+ 5.0 + 3.8 + 5.2 + 5.7 + 5.4	59 58 58 58 55	3 3	17 20	12 12	30 30	1.57 2.73	- 2.07 - 1.01 - 0.37 + 0.12	0.63 1.13 1.57	T. T. 0.2	7 5 8	11 14 13	6 4 8	14 13 10	nw. nw. n.	H. E. Denegar. U. S. Weather Bureau. Erskine R. Eadie.
ayonneelvidereergen Point	Warren	50 289 37	22 16	36.5 38.4	+ 5.7 + 5.4	55 55	3 6† 7†	18 12 19	28 28 12	28 34 28	4.26	+ 0.12 - 0.05	1.52 0.96	1.5 T.	8	15 7	8	8	nw.	Samuel J. Hixson. Wm. H. Mitchell, M. D. Joseph White.
oontonridgetonurlington.	Cumberland	12	25 40 23 22 16 23 32 27 35 21	38.8 37.1	+ 3.2	60 56	3	19 19	28 28† 28 28†	32 32	3.11 2.25 2.93	- 0.05 - 0.99 - 1.62 - 0.98 - 1.23 - 0.83 + 0.02	1.21 0.95 1.06	0.3 T. 0.2	8 6 7	13 17	7 6	11 8	w. nw.	Henry A. Jorden. D. S. B. McCoy.
prington	Passaic	17 719 234	35 21 11	41.4 35.2	+ 3.4 + 4.6	58 53	13 2†	22 7	28 28†	23 34	2.55 3.56 3.75	- 1.23 - 0.83 + 0.02	1.10 1.34 1.55	T. 0.1 1.0	8 5 7	15	12 12	10	nw.	U. S. Weather Bureau. George S. Briggs. M. A. Butler.
aytonlivers Lake	Gloucester	126 848	20 12		+ 3.6	56	7†	19 2 12	28 28	30	2.67 3.19 3.02	- 1.02 - 0.34 - 1.10	1.00 1.30 1.19	5.8 1.0	8	22 16 4	3 9 17	6 6 10	nw. w.	William T. Farley. Brice E. Riker. William C. Harris.
izabethemington	Union Hunterdon	600 45 140	29 34 25 26	38.0 37.8	+ 5.9 + 4.5 + 5.8	59 60 57	21 3 3†	16 16	28 28 28 28 28 28 28	31	2 70		1.64	1.0 T.	7 8 9	14 12	10 10	7 9	nw.	L. B. Bonnett. Hiram E. Deats.
addonfieldighwood	Camden Bergen	75 90 185	26 26 25	38.3 36.6 37.2	+ 5.0 + 4.2 + 2.6 + 3.8	57 58 58	3 2	16 14 13	28 28† 28	30 30 33 36 27 34	2.27 3.32 2.42	- 0.98 - 1.38 - 0.84 - 1.15 - 1.65 - 0.08	0.88 1.45 1.00	0.2 0.5 1.0	9 7 6	11 13 12	13 7 5	7 11 14	nw. nw. sw.	Chas. F. Richardson. Charles J. Bates. H. E. Bullock.
rsey City	Burlington	76 10	24 15	39.1	+ 5.1	60	3†	12 19	28 28 28 28	36 27	2.44 3.48	- 1.65 - 0.08	0.81 1.60 0.61	0.5 0.4 T.	9 8 6	11 11 8	12 10 8	8 10 15	nw. nw. nw.	James Armstrong. Samuel K. Pearson, jr. R. W. Holman.
nkewood nmbertville nyton	Hunterdon	54 95 550	11 26 14	39. 2 40. 9 32. 4	+ 7.6 + 5.0	58 62 63	3 6 3	15 18 - 11	28 28	31 40		- 1.69 - 1.83 + 0.04	0.70	6.0	6	23	4	4	n.	S. W. Cochran. Warren C. Hursh.
ttle Falls ong Branch	Passaic	175 25 312	11 6 11	38.1		58	3	17	12	32	3.88 4.12 3.75	+ 0.04	1.53 1.56 1.60	0.5	7 7 7	11	10	10	nw.	A. Sweetman. William D. Martin, jr. Charles L. Barker.
oorestown	Burlington	75 159	51 70	39.3 39.2	+ 6.0 + 6.2 + 2.7	63 58	4 3	16 17	28 28 28	34 28	2.28 4.59	- 1.30 + 0.79	0.89	T. 0.7	7 8 6	11 11 16	11 9	9	nw. nw. nw.	George L. Gillingham. Prof. Wm. Weiner. Earle C. Stillwell.
ew Brunswick ewton orthfield	Sussex	139 678 25	60 34 6	33.1	+ 3.8	57 53	3 14	16 7	28	28 28 35	3.41		1.98 1.45 0.99	0.7 4.5 T.	5 5	11	8 7	7 13	sw.	F. Vernon Losee. William L. Flick.
tersontillipsburgainfield	Passaic	80 363 100	42 23 27	38.8 36.6	+ 5.7 + 5.3 + 5.8	61 54 59	3 3	18 13 17	28† 28 28	29 30 29	3.53	- 0.58 + 0.25 + 0.03	1.28 1.32 1.93	0.4 2.0 0.7	8 10 8	7 16 7	18 6 12	9 12	nw. w. nw.	Heber A. Probert. D. W. Smith. John Neagle.
easantville mpton Plains	Morris	26 195	15								2.81 3.53	- 0.86 - 0.21	1.01 1.48 1.14		4 7 8	7 25	1	5	nw.	. Lincoln Van Gilder. M. S. Taylor. A. A. Macdonald.
mervilleuth Orange		60 200 442	30 43 23	37.1	+ 5.9 + 5.1 + 4.6	56 56	5 3 14	14 17 6	28 28 28†	32 26 35	9 46	+ 0.06	1.82	1.0	7	18 11	7 4 6	9 14	w. nw.	Dr. Wm. J. Chandler. George Dymock. U. S. Weather Bureau.
enton nckertonneland	Mercer Ocean	190 23 118	42 20 44	38.3 37.8	+ 2.1 + 3.3 + 4.0	57 58 58	3 14 2	19 12 17	28 28 28 28 28	28 33 30	2.44 2.99 1.47	- 1.28 - 1.11 - 1.29 - 2.37 - 2.21	1.26 1.45 1.01	0.5 0.2 0.2	7 7 6	13 16 16	8 8 10	10 7 5	nw. nw. nw.	Frank R. Austin. Alfred Chalmers.
oodbine		43	22	38.8	+ 3.8	59	3	16	28	336	1.69	- 2.21		0	7	22	2	7	w.	Prof. R. D. Malthy.
yard	Grant	2,500	11	34. 2	+ 5.0	61	6	3	28 20†	32*	2.64	- 1.54 + 0.62	0.85 1.80	6.0	10	11=	40		w. nw.	Solomon Clark.
arlingtonanklinst City	Pendleton		19 7 7	34.0	+ 3.4	. 56	5 6	14 8 12	27 28	34*		+ 0.40	0.80	6.0	6	17*	7°	13	w.	J W. Vandiver. Miss Evelyn Calhoun. B. D. Hinegardner. G W. Ven Metro C F
artinsburg oorefield	Hardy	435 900 824	21 18 17	37. 8 37. 4	+ 4.9 + 4.1	63 68	5 7	20 16	20† 27†	38	3. 05 2. 59	+ 0.40 + 0.33	1.15	1.0 3.0	6 4	15° 9	12	10	nw.	B. D. Hinegardner. G. W. Van Metre, C. F. John C. Fisher. E. F. Staub. J. M. Mallow.
omneypper Tract	Pendleton	1, 230	15	37.6	+ 3.5	64	5	9	27	38	1. 35	- 0.95	0.50	4.0	5	4	18	9	W.	J. M. Mallow.
nnapolis		45	41	43.0	+ 6.0	70	61	24	11 8	34 29	2.00	- 1.79 - 0.50	0.95 1.42	T.	7 5	10 9	6 8	15 14	nw.	U. S. Naval Academy U. S. Weather Bureau
altimore ambridge heltenham	Prince Georges	115 25 230	15 13	39.8	+ 4.5 + 5.0 + 5.4	64	13 13	25 25 19 22 14	10	29	2.40	- 1.79 - 0.50 - 1.50 - 2.34 - 1.36	0.71	0		12 14	9 5	10 12	nw.	U. S. Weather Bureau. T. E. Keenan. George Hartnell. M. W. Thomas. D. Paul Oswald.
nestertown newsville ear Spring	Kent Washington	80 530 650	27 16 15	41. 2 37. 5 36. 4	+ 5.9 + 5.7 + 5.4	61 61 62	5 13 14	14 17	28 28 28 28 20 28 28 28 28	32 34 31	2. 90	- 0.84	0.83 0.88 0.98	T. 1.5 1.5	8	6 7 14	18 11	8 6 6	nw. nw. w.	D. Paul Oswald. W. W. Frantz. J. S. Harris.
olemanollege Park	Rent Prince Georges	80 170	13 22	39.6 38.2	+ 4.4 + 2.6	66	13	21 17	28 20	32 41 38	2. 23 2. 31 2. 45	- 2.22	1. 27 1. 31 0. 99	0 0 T.	4	18 14	3 7 4	10 10 16	nw. nw. w.	J. S. Harris. Prof. H. J. Patterson. Francis E. Harrington.
amberlandarlingtonenton	Allegany Harford Caroline	623 300 42	39 22 18	38. 4 37. 0 38. 8	+ 3.4 + 3.6	63 59 60	14 13 5	15 14 18	28 28 28	35	2.76 2.85	- 1.12 - 0.18	0.90	T.	8	12 20	10	9 7	nw.	Prof. H. J. Patterson. Francis E. Harrington Prof. A. F. Galbreath. H. B. Mason.
aston. mmitsburgallston	Talbot	35 720	22 41	40.3	+ 3.8	61	51		28	34	2.23	- 0.87 - 0.82	1. 16	0 T.	7	15	22	12	nw.	Henry Shreve. James J. White. J. H. Curtiss.

Table 1.—Climatological data for December, 1913. District No. 1—Continued.

			years	Temp	perature	, in o	legre	es Fal	renh	neit.	Prec	ipitation	, in in		days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind d	Observers.
Maryland-Continued.																				
Frederick Frostburg Great Falls Green Spring Furnace. Keedysville Lake Montebello Laurel Leonardtown Monrovia. Pocomoke City Princess Anne Rockville.	Allegany Montgomery Washington do Baltimore Prince Georges. St. Marys Frederick. Worcester. Somerset Montgomery	275 1,929 200 450 400 200 150 100 630 37 17 421	38 6 23 21 9 4 19 3 28 20 20 6	35. 8 38. 8 38. 8 37. 4 39. 2 37. 1 40. 4 38. 0 42. 3 40. 4	+ 2.9 + 4.2 + 1.6 + 3.4	61 62 65 59 61 62	13 7 5 13 13 5† 5 5 13 5 5	20 11 18 17* 17 20 15 20 19 23 20	20† 28 28 20 28 27 20 10 28 28 10†	33 36 34* 35 33 41 32 29 28 33	1.88 2.75 2.64 3.27 2.17 2.90 1.61 2.57 1.82 2.06	- 0.23 - 0.80 - 0.59 - 1.60 - 1.04	1. 11 0. 70 1. 58 0. 93 0. 89 0. 79 1. 75 0. 87 0. 78 1. 04 0. 94	T. 5.0 0 1.0 0.5 T. T. T. T. 0	7 11 4 6 7 5 6 4 7 6 5	17 8 17 10 14 16 13 17 15 164	6	11	nw.	Chas. S. Birely. R. A. Walter. Chas. E. Sullivan. E. G. Kinsell. J. A. Miller. Martin L. Dobler. Dr. T. M. Baldwin. Brother Fidilis. J. H. Lawson. Hon. R. M. Stevenson. J. R. Stewart. Dr. G. E. Lewis. W. E. Downing.
Salisbury. Solomons. State Sanatorium. Sudlersville. Takoma Park. Towson. Van Bibber. Westernport. Westminster. Woodstock.	Calvert Frederick Queen Annes Montgomery Baltimore Harford Allegany Carroll	23 20 1,460 65 320 465 100 1,000 860 392	8 22 6 15 15 5 16 19 20 43	39, 1 38, 5 37, 64 39, 3	+ 3.6 + 3.7 + 5.9	65 62 58 60 65 60 63 70	13 5 17 3† 13 5† 3 7	19 27 9 20 23 18 18 15	10† 8 9 28 28† 28 20 28	27 31 32 39 32 34 35	1. 43 2. 74 2. 82 2. 08 2. 61 2. 62 2. 40	- 1.39 - 1.25 - 2.14 - 1.46 + 0.11 - 0.51	0.91 0.72 1.01 1.04 1.10 1.00 0.81 0.90	T. T. T. T. 0 T.	8 6 4 9 5 5 5 6	15 12 24 10 5 13 12			nw. w.	W. E. Downing. Dr. W. H. Marsh. Superintendent. Henry L. Higman. L. M. Mooers. C. W. E. Treadwell. W. Benj. Ford. Prof. O. H. Bruce. Prof. Morelock. Rev. Dawson, S. J.
Delaware.		-																		
Delaware City Dover	Kentdo	10 40 20 20 40 86	6 25 29 21 22 2	40, 44	+ 3.9 + 2.9 + 5.6 + 3.8	60 67 61	13 3† 13† 13 13 3	21 21 22 21 18 23	28 28 27 10† 28 28	31 31 32 35 33 30	2.44	- 1.72	0. 67 1. 00 1. 14 0. 80 1. 20 0. 87	T. T. T. T.	4 3 9 5 7 5	18 16 16 20 14 19	6 6 7 0 9	7 9 8 11 7 4	w. nw. nw.	H Morton Price. W. C. Joesting. Chas. Holzmueller. Rev. L. W. Wells. E. B. Brown. Alexander J. Taylor.
District of Columbia.  Washington	D.C.	112	43	40.4	+ 4.3	66	13	24	28	33	2, 29	- 0.87	1.31	T.	6	9	9	13	nw.	U. S. Weather Bureau.
Virginia.			10	20. 1	1 2.0	0	10		-	00	20, 20	0.01	1.01	1.				10	1	O. S. Westler Dureau.
Culpeper	Rockingham Northampton Spotsylvania Loudoundo	450 1,350 15 100 500 1,726 16	5 34 3 24 12 9 16	39.0	+ 2.3 + 4.6 + 7.2	60 66 66 70 64 58 66	13 5 5 5 6† 5	18 14 23 18 17 17	10† 9 10† 12 20 8 10	35 39 33 43 35 25 40	3. 39 2. 15 1. 36 2. 34 1. 56 1. 73 2. 58	- 2.07 - 1.10 - 1.79 - 1.36	1. 15 0. 76 0. 45 1. 06 0. 67 0. 75 1. 38	2.0 0 0 T. 0.5 T.	5 5 5	12 10 15 15 14 8 19	13 13 6 8 8 10 5	6 8 10 8 9 13 7	W.	Col. H. C. Burrows. Rev. L. J. Heatwole. T. B. Robertson. S. G. Howison. Dr. Geo. Roberts. U. S. Weather Bureau. Richmond, Fredericksburg.
Staunton. Swetnam Wachapreague Warsaw. Waynesboro Winchester Woodstock.	Fairfax	1, 380 300 15 160 1, 315 717 927	21 1 21 1 21 1 2 17	42. 44 40. 4 39. 6	+ 2.7 + 4.9 + 5.1	64	5 5 5 5† 5	24 20 20 21 20	10† 13 8 8† 10†	38 28 35	1. 13		1.00 1.20 1.50	1.0 0 T. T. 0.5	5 5 2 5	13 21 8 26 18 11	7 5 14 0 7 12	6	w. w.	& Potomae Railroad. Ernest Nothnagel. Potomae Electric Power Co Mrs. A. H. G. Mears. C. H. Constable. H. M. Magie. Bamtley Kern. Mrs. A. G. Artz.

a, b, o, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
 Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
 T. Precipitation is less than 0.01 inch rain or melted snow.

Table 2.—Daily precipitation for December, 1913. District No. 1, North Atlantic States.

Stations	Watershed.														1	,	f mo			-	-	7.1	- 1	-				1		-	-		_	
Stations.	wateraned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	2	8	29	30	31	man de la
Maine.				,																														
shland	St. John	т.									20			Т.			T	T	T.		T	• • • •			1.30		.3	5						4
ar Harbor	Coast Kennebec	Т.		15				1.80	1.00		T.			1.											. 80		. 30	0						2
raish	Saco	. 04	T.	. 01				1. 51	. 35											000				. 40	. 75	*		0						3 2
anforth	Penobscot		. 07					*	1.27								08	00				10			20	04	1. 0	7	0		.04			3
astport	Coast	.08			m	.01		1.36	.26	T	.04 T.	. 02	T			T	T.	.00	T.	T		. 10			.77			1 T				T.	.03	2
ustis	Kennebec			. 03			. 02	1.18	. 14	4.	**	A .	4.											4	. 83		1.00	0						3
armington	do	T.	T.			T.		. 35			. 02				T.			.01							1.04		. 5							3
ardiner	do	. 08		. 16				. 55	1.73						70		0.5				T				1.05		.50	8 .0	14			T.	T.	1
	do	. 05		. 10	T.	. 05		.78	1. 12		T.	T.					. 05		1.		1.						. 6	0				. 05		2
oultonowe Brook	St. John Penobscot			. 24		. 16		.40	. 50					. 40						. 50			. 30									. 25		2
ewiston	Androscoggin	T.		. 05				1.47	. 99			. 05													1.25			2						1
adison	Kannahae			. 05				1.50	. 30		T.									TO !	T			. 90	75	. 31		7 .7			****	.02		
illinocket	Penobscot		. 19	. 05	T.			1.25	. 64								. 03			1.	1.				1. 11		.3							1 2
orth Bridgton	Saco Androscoggin		T.					.31	40							****									. 50		.4					T.		
quossoc	Penobscot	40	1.	37				.00	1. 10		,														. 60			0						13
tten	do			. 10					. 64			. 20													.80		. 4	0						1
maquid	Coast																					01		. 25	1 16	.08	.9	0			****	****	****	
ortland	do	.01		. 05				1.39	. 46	.06	.01	T.			T.		10	.02									.6	0				. 10		1 2
resque Isle umford Falls	St. John	T .80	0.5	. 10				.20	. 24	.00	T				T.		T.							. 36			. 5	0						1
he Forks	Kennebec																												0.					1
an Buren	St. John	. 08		. 22	T.	T.				2.20								.08	T.	T.	T.				. 60		.3		85			. 09		
inslow	Kennebec		*	. 12				*	1.86		. 05																	7	1.	1				1
New Hampshire.																	1																	-
stead Center	Connecticut.	.02	T.	****				. 62	. 33			T.							T.					T.	1000		5	4						-
enton	do																								24			4				****	.04	1
thlehem	do	.06		. 08	53			. 19	. 83		. 08								T		T.			1.18	.02		0 .2	0						
rookline	Merrimack							1.00	4.		T	T.			T	****			1.		T.			. 40	. 12	. 10		35						
oncord	do	.01				****		. 65	.30		.01	4.												. 40			8	50			••••			
anklin	do							. 95	. 43			T.				T.								. 05	1.00		7	5 T						
afton	do							. 60	.80													m		. 13	. 63		1:7	70				T	T.	
anover	Connecticut.	. 04	T.	. 03					1. 52			. 05			.00			T.	T			1.			. 67									
eene	Merrimack	TP.	1.	T								T												T.	1.28		8	30 T						
ashuaewton		T.		. 03			****	. 99			. 01													1.32				01				T.	T.	
lymouth	do			T.				. 93	. 60	T.	T.					T.		T.		T.				T.	. 69		6	34			****	1.	T.	
Vermont.																											1		1					1
loomfield	Connecticut.	. 05		. 14		. 06	.00	. 31	. 57					. 02				. 01														.06		
	do							. 65																. 28	1 .30		4	45						
helsea	Hudson			11	T			79	. 53			.11													. 13		!	59						-
anchester	Connecticut		10000	No.	1 - 07			. 93	. 58		. 01	. 03				T.			.08			T.		. 12	. 69		- 3	76 7	r.  -				T.	
t. Johnsbury	do	. 28		. 07		. 02		. 18	. 50		T.	. 04				T.	T.		T.						. 92	.3	0 1					.01		
ernon	do							94	. 62					1					T	****			****	1.01	+ 20	- 0	0 .	96						
Voodstock	do	****	****	****					1. 44	****								****	**		****			2.02		1	1	-	-	-	-	1	1	
Massachusetts.																																	1	
mherst	Connecticut.	. 02						1. 11	. 12		. 04	. 04							T.					. 82	1.00	1	1 6	07	1			1		
shland	Merrimack							1. 12	. 01	80													****		. 78			90						
akers Bridge	do	m.	'm	T.				. 48	. 12							1								. 02	. 66									
edfordlue Hill		.01	T. T.	.01			1	96	. 29			. 01							T.				T.	.01	1.00	0 .0	81.3	34			1			.1
oston	do	T.		T.				89	. 30	)		T.											T.	.36	.50	1 . 1	5 .	30			****			
hestnut Hill	do							. 1. 20	. 05										T				T.	. 98	1. 12	. 8	1	09						1
inton	Merrimack							1. 25				T			1				1.					: 04	. 78	T.	1	95						
	Coast	. 04		T.	1				. 18			1.			1									. 69	. 43	3 .3	0 .	69	r.					-
oncord		.02						98	. 10	)		T.							T.					. 15	. 58	T.		63 7 98						-
oncordall River									1. 18								1							T.	1.00			62					1	
oncordall Riveritchburg	Merrimackdo			. 01		T.						. 02				1000							-		1.14	11.2			-					
oncord all River. itchburg. ramingham averhill	Merrimackdodo	T.			1	T.			1. 35	2												. 12			. 94	1		80	06					
oncord. all River. itchburg. ramingham averhill. ingham.	Merrimackdodo	T.				1		1.05		*	. 00	3	1												1.00	3		99						-
oncord all River. itchburg ramingham averhill ingham yannis	Merrimackdododododododo	T. T.								. 1	-	1													1.0	*		98 96						-
oncord all River. itehburg ramingham averhill ingham yannis.	Merrimackdododododododo	T.						1 00	. 02	2								10000						90	1.0			96						-
oncord. all River. itchburg. ramingham. averhill. ingham. yannis. ifferson. ake Cochituate. awence.	Merrimackdododododododo	T. T. .04		. 10				1 00	.03	7		. 03	3											*	1. 19	8		99					-1000	
oncord all River, itchburg ramingham averhill ingham yannis ifferson ake Cochituate. awrence eominster	Merrimackdododododododo	T. T.		. 10 T.				1. 02 1. 25 1. 12	.00	3	T.	. 00	3					10000					10000											
meord all River ttehburg amingham averhill ingham yannis fferson awence awence ominster	Merrimackdododododododo	T 04		T.				1. 02 1. 25 1. 12 *	1.30	3	T.	.00	3					1			. (1)			. 70	31	8 .4		41						
oncord  all River.  techburg.  ramingham  averhill.  ingham  yannis  fferson  ake Cochituate  awrence.  sominster  owell  iddleboro.	Merrimack do do do Coast do Merrimack do do do do do do Coast do Coast do Coast do Coast do Coast	T 04		T.				1. 02 1. 25 1. 12 *	. 06 1. 36	7 3 5 .08	Т.	.00	3			10000			. 03		.01	. 04			31	8 .4								
necord Il River. tehburg. amingham averhill ingham yannis flerson. ike Cochituate. wwrence oominster owell iddleboro. antucket.	Merrimack do	T 04		T				1. 02 1. 25 1. 12 * 1. 64 1. 18	. 00 1. 30 . 00 . 00	3 . 03	Т.	.00	3									. 04		. 70	31 . 54		70	41 36						
oncord all River. itchburg. ramingham averhill ingham yannis ifferson ake Cochituate. awrence eominster owell iddleboro antucket ew Bedford orfolk	MerrimackdododoCoastdoMerrimackdododododododo	T		T.				1. 02 1. 25 1. 12 * 1. 64 1. 18	1. 36 0.06 1. 36 0.01	8 .08	т.	.00	3									. 04		. 70	1.00	8	70 .	41 36 						
meord all River. Itchburg ramingham averhill ingham yannis ifferson awence eominster owell iddleboro antucket ew Bedford orfolk lymouth	Merrimack do do do do Coast do Merrimack do do do do do do do coast do do do coast do do	T		T03				1. 02 1. 25 1. 12 * 1. 64 1. 18	1. 36 . 06 . 06 . 07 1. 24 1. 64	7 8 . 08 9	T.	.00	3								.06	. 04		. 70	3 . 3 . 5 . 5 . 5 . 1 . 0 . 1 . 3 . 1 . 3	8	1. 1.	41 36 01 27						
meord all River. Itchburg. ramingham averhill ingham yannis ifferson ake Cochituate awrence eominster owell iddleboro antucket ew Bedford orfolk ymouth rinceton	Merrimack do do do Coast do do Merrimack do do do do do do  Coast do do do  Coast do do  Coast do do do Merrimack	T. T. T.		T03				1. 02 1. 25 1. 12 * 1. 64 1. 18	1. 30 1. 30 1. 30 1. 20 1. 60 1. 20	5 . 03	T.	. 00	3								.06	. 04		. 70	1.00 1.31 .71	8	1. 1.	41 36 01 27 44 74	. 081.					
oncord all River, itchburg ramingham averhill ingham yannis ifferson ake Cochituate awrence eominster owell iddleboro antucket ew Bedford orfolk lymouth rinceton rovincetown	Merrimack do do do do Coast do Merrimack do do do do do do do Coast do do Coast do do do Coast do do Coast Coast	T 04		. 10 T 00 T 00			T	1. 02 1. 25 1. 12 * 1. 64 1. 18	1. 30 1. 30 1. 30 1. 20 1. 20 1. 20 1. 20	7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T.	. 00	3								.06	. 04		.70	1. 00 1. 31 1. 31 . 71 . 91	8	1. 1.	41 36 01 27	. 081.					
oncord. all River. itchburg. ramingham averhill. ingham. yannis. ifferson ake Cochituate. awence. cominster. owell. iddleboro. antucket. ew Bedford. orfolk. lymouth. rinceton. rovincetown.	Merrimack do. do. do. Coast do. Merrimack do. do. do. do. do. do. do. do. Coast do. do. do. Coast do.	T. T. T.		. 10 T 00 T 07			T	1. 02 1. 25 1. 12 1. 164 1. 18 * * * 42 43 . 06	1. 20 1. 30 1. 30 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20	7 3 8 9 1 1 5 5 0 0 0 0 7	T.	. 00	T.							T.	. 06	. 04		1.04	1. 00 1. 31 1. 31 1. 31 1. 31	8	70 i. 1.	41 36 01 27 44 74 95	10					
oncord all River. itchburg. ramingham averhill. ingham yannis ifferson ake Cochituate. awrence. sowell iddleboro. antucket iddleboro antucket. iymouth rinceton rovincetown ockport. ittland*	Merrimack do do do do Coast do Merrimack do do do do do do do Coast do do Coast do do do Coast do do Coast Coast	T. T. T.		. 10 T 06 T 07			T	1. 02 1. 25 1. 12 * 1. 64 1. 18 * * * 42 43 . 06 1. 43	1. 20 1. 30 1. 20 1. 60 1. 20 1. 20 1. 20 1. 20 1. 20	7 3 8 9 1 1 5 5 0 0 0 0 0 7	T.	. 00 T. T.	т.							T.	.06	. 04	т.	. 70 . 28	1.00 1.31 .71 .91	8	70 	41 36 01 27 44 74 95	10					
oncord all River. ttchburg. ramingham averhill. ingham yannis fferson ake Cochituate awrence. cominster owell iddleboro antucket ew Bedford. orfolk ymouth rinceton rovincetown ockport. uttland* omerset oot Pond	Merrimack do do do Coast do Coast do do do Coast do do do Coast do	T. T. T.		. 10 T 06 T 07			T	1. 02 1. 25 1. 12 * 1. 64 1. 18 * * * 42 43 . 06 1. 43 1. 04	1. 20 1. 20 1. 60 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20	7 3 5 5 0 1 1 5 5 0 0 0 7 0 0 0	T.	. 00	т.							т.	.06	. 04	T.	. 70 . 28	1.00 1.31 .71 .91	8	70 1. 1.	41 36 01 27 44 74 95	10					
oncord all River. Itchburg ramingham averhill ingham yannis offerson ake Cochituate awrence eominster owell iddleboro antucket ew Bedford orfolk iymouth rinceton rovincetown ockport tutland* omerset pot Pond pringfield	Merrimack do do do do do Merrimack do do do do do do do coast do do do coast do do do cost do conecticut coast	T. T		. 16 T			T	1. 02 1. 25 1. 12 * 1. 64 1. 18 * * * 42 43 . 06 1. 43 1. 04 4. 90	1. 20 1. 20 20 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20 1. 20 20 20 20 20 20 20 20 20 20 20 20 20 2	7 3 3 5 5 1 1 5 5 5 7 0 0 7	3 4 .00 T.	. 00 T. T.	т.							T.	.06	. 10	T.	1.04 .87	1.00 1.31 .71 .91	8	70	41 36 01 27 44 74 95 06 88 18	10					
oncord all River. itchburg ramingham averhill ingham yannis ifferson ake Cochituate awence eominster oowell iddleboro antucket ew Bedford orfolk lymouth rinceton rovincetown ockport intland* omerset pot Pond pringfield	Merrimack do. do. do. Coast do.	T. T		. 10 T 03 T 07	3		T	1. 02 1. 25 1. 12 * 1. 64 1. 18 * * * 42 43 . 06 1. 43 1. 04	1. 20 1. 30 1. 30 1. 20 1. 60 1. 20 1. 20 20 1. 20 1. 20 20 20 20 20 20 20 20 20 20 20 20 20 2	7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 4 .00 T.	. 00 T. T.	т.							T.	.06	. 10	T.	. 70 . 28	1. 00 1. 31 1. 00 1. 31 77 90 90 90 90 90 90 90 90 90 90 90 90 90	8	1. 1. 1.	41 36 01 27 44 95 06 88 58	10					
oncord all River. itchburg. ramingham averhill. ingham. yannis ifferson. ake Cochituate. awrence. eominster. owell. iddleboro. antucket. ew Bedford. orfolk. iymouth. rinceton. rovincetown. ookport. ittland* omerset. pot Pond. oringfield. terling. auuton.	Merrimack do do do do Merrimack do	T. T		. 16 T 03 T 07			Т.	1. 02 1. 25 1. 12 * 1. 64 1. 18 * * * 42 43 1. 04 4. 90	1. 20 1. 30 1. 30 1. 20 1. 60 1. 20 1. 20 20 1. 20 1. 20 20 20 20 20 20 20 20 20 20 20 20 20 2	7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3 3 4 .00	. 00 T. T.	т.							T.	.06	. 10	T.	. 70 . 28 	0 .31 8 .54 1.00 1.31 .71 .91 .91	8	70	41 36 01 27 44 74 95 06 88 18	10					
meord all River. Itchburg ramingham averhill ingham yannis ifferson awence cominster owell iddleboro antucket ew Bedford orfolk iymouth rinceton rovincetown ockport utland* pot Pond poringfield terling auuton urners Falls	Merrimack do. do. do. Coast do.	T. T. T	. 01	. 10 T 03 T 07	3		Т.	1. 02 1. 25 1. 12 * 1. 64 1. 18 * * * 42 43 1. 04 4. 90 * *	1. 20 1. 30 1. 30 1. 20 1. 60 1. 20 1. 60 1. 20 1. 20 20 1. 20 1. 20 20 20 20 20 20 20 20 20 20 20 20 20 2	73 35 . 03 36 . 03 37 . 04 4	3 3 4 .00	. 00 T.	т.							т.	.08	. 10	T.	. 70 . 28 	1. 00 1. 31 1. 00 1. 31 77 90 90 90 90 90 90 90 90 90 90 90 90 90	8	70	41 36 01 27 44 95 06 88 58	10					
meord  Il River.  tehburg.  amingham  averhill.  ingham  yannis  fferson  ske Cochituate.  awrence.  sominster  swell.  iddleboro.  antucket.  ew Bedford.  orfolk.  ymouth.  rinceton  rovincetown  ook port.  uttand*  merset.  oot Pond.  oringfield.  erling.  aunton.	Merrimack do. do. do. Coast do.	T. T	.01	. 16 T 03 T 07	,		Т.	1. 02 1. 25 1. 12 * 1. 64 1. 18 * * * 42 43 1. 04 4. 90 * *	1. 20 1. 30 1. 30 1. 20 1. 20 20 1. 20 20 20 20 20 20 20 20 20 20 20 20 20 2	7 3 5 5 6 7 0 0 7 0 0 0 0 7	3 3 4 .00	. 00 T.	T.							т.	.08	. 10	T. 1. 14	1. 04 .87	0 .31 8 .54 1.00 1.31 .71 .90 .90 .90 .80 .11	8	70	41 36 01 27 44 74 95 06 88 18 58	10					

TABLE 2.—Daily precipitation for December, 1913. District No. 1—Continued.

Stations.	Watershed.							, ,							-	ay o	f mo								,			-	,			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Rhode Island.																										_						-
ock Island	Coast	. 01						1.41	. 01													. 01	. 21	. 50	. 25	54	. 56					
istol	do		****					1.41	1.66													. 03	T.	*	1. 25	*	1.04					
eene		т.						1.96	1.60														. 17		1.03		. 83					
pe Valley	do	.02	****					2.52	.44	****											. 05	****	. 11	34	1.90 1.55	T.	. 74		****			
ngston rragansett Pier	do	. 02		T.				1.55	. 26													. 06	. 16	. 23	1.19	. 04	1.01					
wtucket	do	70		T.				1.55	1.65										T.		T.		. 04	*	1.34	*	. 86					
ovidence		Т.		Т.				. 10	T.			T.									Т.			1.05	.52	. 08			. 02	T.	T.	T.
Connecticut.																																
idgeport	Coast Connecticut.	T.			****			1. 27	. 07		. 01								T.				. 18		1.38	. 27	. 48					
lchester	Coast			1				1. 10	. 62					****	1								. 18		1.42		.99					
am Hill	Housatonic .	. 01		1				. 95	.30			. 06							T.								.30					
nielson	Coast							1. 43	1.35			T.												1.10			. 85		****			
lls Village	Housatonic . Connecticut.	T.						1.43	10			T.										T.		. 34	. ii	. 36			****			
wley ville	Housatonic .	1.					1	87			L.	1.										1.			1. 12		. 58					
ke Konomoc	Coastdo								1.60														. 19		1.75		1.00					
w Haven	do	T.						1. 53	.06										T.		T.			1.45								***
w London	do							1. 55				. 03								. 02	1.	****	****	. 15	. 95		.51				1	
Dale.						1				1					1					- 54											1	1
rwalk	do	****						*	1.05											****				1.33		*	. 82					
uthingtonuth Manchester.	Connecticut.								. 40											****		****	. 40	T.	1.40		. 75	T.	***			
OFTS	Coast	. 04		****				2.00	. 04		1												. 20	****	.90		T.	1	****		1	
rrington	Housatonic .																															
oluntownallingford	Coastdo						0.	1. 22	1.55		m											10	. 15		1.30		. 94					
allingiordaterbury	Housatonie .	T.	****		****		. 05				T. T.	T.	****	****					T.			. 19		1.46	.97	. 73	. 07					
New York.									,,,,,		-	-								****						****	100	1			1	
dison	Susqu'hanna		T.	.01				. 16	. 08		T.	. 08							T.			. 08	. 02	. 55	. 19		. 88	3			T.	
bany	Hudson		T.	T.				. 20	.06		. 12	. 03							T.			T.	.01	.27	. 05	. 14	.72	2			T.	
frednsterdam	Susqu'hanna Mohawk	****		.01				.30	. 05										T.				. 03	. 60	. 02	. 05	. 62	3				
hens	Hudson	****		****	****	****		. 45		****								****	01		****			. 03	. 44	****	. 00	9				
inbridge	Susqu'hanna							. 29	. 35			,11							.01	.09			.04	. 16			. 13	3				
llston Lake	Hudson			T.				.54	. 10		T.	.10							.02					*	. 63		1.04	4 T.			T.	T.
dforderston	Coast Delaware	T.		02			****	.96			T.	1.00												. 83				0				
nghamton	Susqu'hanna	****	****	T		****		. 22			.05								T.			.09		. 54							T	****
uckville	do			.06				. 21	. 10			.30								T.				. 10	. 39		1.30	0				
rmel	Hudson							. 75			. 04											. 14		. 68			1,09	9				
athamoperstown	Susqu'hanna		T.					.17			T.													. 25		T.	. 88				000	
rinth	Hudson	****	.00				****	.87												****				. 98		. 00	4.0				. 04	
rtland	Susqu'nanna			. 02	. 05				. 62		. 01	. 14							. 05	.01			. 10	. 39	. 46		.74	4 T.			T.	
tchogue	Coast							1.08			T.												. 10	. 20				4				
Ruyter	Susqu'hanna do	****	T		. 18		****	.55	. 21		.05													.76			1. 18	9				
ens Falls	Hudson							1.04											T.					. 43		T.		2				T.
oversville	Mohawk				T.							. 07												. 24			. 78	5				
eenfield Center	Hudson							1.10																. 50			1 . 75	5				
skinville	Susqu'hanna							. 12		. 02		T.												. 15			36	0				
oosick Falls	Hudson			. 02				. 21	. 20	. 35			****											. 10			. 12	2				
dian Lake	do	. 05						. 50																. 10			. 80	0				
fersonville	Delaware			00				. 87	T.	T.	.07								04	T.				. 12	.30 T.	00	1.08	8				
ttle Falls	Mohawk		****	. 20	.00			.35		1.	.08	****				****	****	****	. 04	****	****	****	****	. 03		. 40	36				T	
echanicsville	Hudson						T.	. 60		1														. 49		. 45	T.					
honk Lake	do							1.04														. 23			. 76		1. 13	3				
orehouseville	Mohawk Susqu'hanna			. 05	1 .07			JL, US	. 40			.30					1.02	.05	. 12					. 45	. 12		1.	1			- l . It	
unt Hope	Coast							1.72	.77			. 10												. 36				8				
unt McGregor	Hudson																															
wark Valley	Susqu'hanna					1		. 44	- 18	- 10	T.	1							.01			.03		. 75		. 11	. 82	2 .03	3			
w Lisbon	do						1	. 33	. 18	11		1		I.v.		I.e.s			11.					37	.08		1.3	0 .20				
w York City	Coast	T.						. 34	. 03		. 03											T.	.07	1.08	. 01	. 32	2 . 52	2				
rth Creek	Hudson		1					1 - 70	1.15															*	. 74	*	1 . 40	0				
rthville	Suaqu'hanna			****		00	. 98	89	95		01			****					T		****			. 80	.01	****	6	5				
ford	Susqu'hanna			****	T.	T.		. 45	. 20	T.	T	T			T.				T.	T	****	****		30	.55	T	1 . 5	8 T.				
ster Bay	COast								. 48														.02		1.14		. 9	8				
rt Jervis	Delaware							. 48	.31		. 11							****	T.				. 13	. 90	. 26	.50	.8	8				
slynlisbury	Mohawk	. 02	****	****	01			1. 15	.31		.04	. 02					****	00			****	04	. 10	. 22	. 84	. 10	1 .9	4			1	4
arsdale	Coast				. 21			1.00	. 14		T.							.00		****			.35	. 20	.30	. 20	0 4	0			0	
tauket	do	T.						1. 10	. 12		T.	. 03										T.	. 15	. 45	1.20	. 30	8.	5				
aron Springs	Mohawk					. 02		. 38	. 12			.00							T.					. 42	. 21		. 1. 2	5				
erburne    uthampton	Susqu'hanna Coast			T.				. 25	.30	. 08		T.							m				T.		1 03			4 . 1				
uth Edmeston	Susqu'hanna	. 02		1.	37			.34			T.													. 22	. 41		. 7	5				
ier Falls	Hudson						. 42	1.01	T.		. 02								T.					1.11		. 90	0 .0	3				. T.
enton Falls	Mohawk			T.		T.		. 45	. 70	. 02		. 24	T.				. 05		. 02			.UI		. OU		T.	1.6	0 .2	3			
ica	do	****	****					. 90			. 10	10	A I		1	1	1						05	.50	80		- 6	5				
ading Kiver	Coast	****	****		****	****	****	1.20		. 12	T	.00	. 33	****		****		****	****	****	09	. 02	. 00	02	1.60	0		4				
appinger Falls	Hudson							. 72	. 12		T.	.10							T.		.02	T.		. 28		.2	4 1. 2	6				
arwick	OD							.1 .38	. 05														. 24	. 58		. 2	0 .9	0				
averly	Susqu'hanna Mohawk							. 20	. 05		. 02	. 00							4.			. 00	A.	. 30	. 28		9	5 T.				
est Berne					185			.07	- 90		1																					- 1

Table 2.—Daily precipitation for December, 1913. District No. 1—Continued.

	Watershed														1	)ay	of mo	nth.					+173									
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Pennsylvania.	**																															
lentown	Lehigh							.36	.40		. 04														1.30		.02					
toona	Susq'h'na		.06					.79	T.	T.		90	· · · ·						70	Tr.		.02		. 63			1.32					
nsonia	do	****	****	.10	****	****	****	.70	.05			. 22	T.	****	****			****	T.	T.	****	.15	.02	98	.71	****	.20					1123
thlehem	Lehigh							. 63			.24												. 32	1.20			1.55					
oserville	Susq'h'na Schuylkill							1.14			T.	.02				m		****	T.			. 21	.04	.87		.32					****	****
owers Locktawissa	Susq'h'na	T.	****					. 84	.48		.13					1.		.01			****	T.	.04	.34		1.00						
nter Hall	do	T. T.				****		. 25	T.		T.													. 65		.10						
earfield	do				****			.80	T.		. 01	08										.01	00	.30		.10						****
atesville	Schuylkill	.02						. 52	.01		.03	.05									****		.02	. 84		. 72			1			****
ifton	Susq'h'na							. 60	. 25		.07	.06							.02				.02	. 25	. 50	.13	. 65					
mporium	do	T.	T.				****	.70	.09		.03 T.	.15 T.							.10			.21		. 80		. 40	1.27				****	***
verett	Juniata	.20						.90				.05	****									.09		.40		.55						****
orks of Neshaminy	Delaware							. 44																1.45		.71						
eorge School	Potomac	.09		T.	****		****	1.26	T.			.08	****							****			.33	.06								****
rardville	Susq'h'na			1.	2		****	1.26			.12	T.							T.			.07		1.02	.02	1.02						
ordon	do	.01						1.05	.11			.06										****			.24		1.51					
amburganover	Schuylkill Susq'h'na	.18					****	1.10															21	. 85	.17	. 15						
arrisburg	do	.04			***			1.06	T.		T.	T.		****					T.			. 21	.01	.57	.00	.57						
untingdon	Huntingdon.	. 04	.02					.87															. 07	. 82	.07	.08	. 83	3				
yndman	Potomac	.15						.80			T.	T.							T.			T.		. 67	90	.60						
ancasteransdale	Susq'h'na Schuylkill	T.	T.					.65	.06		****		****								****		. 24	. 35		. 23	1.28			1		
awrenceville	Susq'h'na							.60			T.								T.			T.		. 15	.15		.30					
e Roy	do			. 02				.17	.12		.02	.12							.01			.05	.10	. 65	. 25	. 02	1.40	0				
ewisburg	do	.02 T.						.80			.02 T.	Т.						****	T.	****		. 25		.72			1.76	0				
loyd ock Haven	do	T.	.03					.75			T.	.05					****	****	T.	****	****	.08	****	.73		T.	1.18			1	1	1
arion	Potomac	.10						1.07															.12	. 83	.07	.19	.72	2				
auch Chunk	Lehigh							1.06			T.	. 08										.08		. 81		.51	1.19					
ifflintown	Juniata Delaware	.05	T.					. 98			T.	****							T.	****		****	.11	.80		. 19	1.01					****
ontrose	Susq'h'na							.50			.00	T.			1				1.	T.		T.		.40			.50	0				
ountain House	Junfata	.18						.72														.10	.27				1.10					
ount Gretna	Susq'h'na		T.				****	1.09			.01	T.											.27	. 63	.40	.46	1.14	4	- T.			T.
uncy Valley ttsville	Delaware					1	1	1.11			. 10	.07					1						.05	1.27					1		1	
hiladelphia	do							. 45			.01										T.	. 15		1.16		. 53	3 .2	3	. T.			
oint Pleasant	Schuylkill							.52			.07											100			.14							
ottsvilleeading	do			1	****			1.12			.04	T.							T.		****	.10		.88		.70						
enovo II	Susq'h'na	.01			1			.36		T.	.01	.12			1	1111	1		1.			T.	T.	.01	1.20		1.2					
erantoneisholtsville	do			T.				. 69	T.		.10	T.							T.	T.		T.		. 22		. 53	3 .6	2	- T.			
eisholtsville	Schuylkill Susq'h'na	1	05					.94			.07 T.	.02										. 26		1.22	.43		81.10					
elinsgrove	Schuylkill		.05		*×*		***	. 60			.05			1		****					11111	1	.12			.50			1			
hippensburg	Susq'h'na	.31		. 07	7			. 90	. 30														.12		.71		9	3				
miths Corner	Schuylkill							. 58																1.31								
pring Mount tate College	Susq'h'na	.01	.07	T.			1	53			.01	T.							T		T.	T.	.01	.78		.6						
troudsburg	Delaware			1.				. 66	T.		. 02								T.				.12			1.18	8 .9	7				
unbury	Susq'h'na		. 01					. 60			T.							1	T.					. 45	. 19		1.4					
owanda Veikert	do	. 12		T.				05			. 03	.12							T.	***		. 04	.01	. 75	.14		$ \begin{array}{c c} 2 & 1.1 \\ 0 & 1.0 \end{array} $					
Vest Chester	Coast	.01						. 47			.02	. 02				1			.04					1.03			3 .6				1	
Vilkes-Barre	Susq'h'na							. 35				.01													.30		. 1.1		8			
Villiamsport	do							. 69	.12		****	. 02							****				****		. 90		. 1.3	6				
New Jersey.																				1												
		_																							1							
sbury Park	Coastdo	T.	T.					63			.01 T.								T.			T.	.08	. 43	.0	1.2	0 .2	1				
tlantic City	do		T.					67				.01							T.			1.	. 09	1.48	3 .0	1 . 1	9 .7	5				
elvidere	Delaware							. 1.08				. 08												1. 52	2	*	1.5	8				
ergen Point oonton	Coast Passaic											.08										. 03	. 06		1.0		7 .8		5			
ridgeton	Coast	T.	T.					50	T.		T.	.01	***								Lane.	. 10		*	.7	*	.9	5	10			
ridgeton urlington   ape May City	Delaware		. 03					. T.	. 58	5	T.	. 02										. T.	. 18		1.0	8	9	9 .1	0			
ape May City harlotteburg	Coast Passaic			7 .00	2			40				T.							T.					. 50	1.2	1 .7	4 .3	50		-		
hatham	do							30				.04							1.		0.	3 . 18	.20		1.5	5	1.0	15				1
layton	Coast	T.	. 10	0				60				T.													9	7	. 1.0	00				
laytonulver's Lake	Delaware							8	. 0	5	T.	.00	1000						T.				. 10				21.3	30				
lizabeth	Passaic	T.						68		3	.03								Т.			1	. 13	1.1		4 *	1.0					
lemington	do							. 51	.02	2	T.	.0	1							1		T.	.1	.3	1 .8		8 .7					
addonfield	Delaware	. 0	2 .0	5				41	. 00	2													.13		4 T.	1.4	3 .4	15			- wines	
lighwood	Coast	T.						57	.02	2													. 2	1.1	5 1.3	0 *	1.0	10				
nlaystown ndian Mills	Delaware		. 0	7				24				.0							T.			. 10	0.0	1 .10	0 8	1 .1	6 6	38				
ersey City	do	T.						68	T.		. 04	T.											.00	*	1.6	0 .3	8. 00	31		. see.		
akewood	do		. T.					51		5		T.							T.			. T.		.2	2 .6	1 .3	35 .0	14				
ambertville	Delaware							49	0.0				1											1.1	à			30				
aytonittle Falls	Passaic							. 61			.07	7			* * * * *				1			0	0.0	1.5		1.0	30 . 9	95				
ong Branch	Coast	T.						76	3 . 13	3		T.							T.		0		1 .0	1 4	2 1 1	1 5	177 6	27				
[ahwah]]	Passaic								1 . 5	3													. 2	3	. 1.1	0	1.4	45 .	15			
loorestown	Delaware Passaic		. 0					. 68		0	01	T.										0	.1.	2 2	8.	1 *	4 1. 1	11				
lewark lew Brunswick	Coast							49		***	110	5									0	- 1			8	4	18 . (	01				
ewton	Delaware							91	T.		.10	)										2		. 7	4		1.4	45				
orthfield	Coast							73	3			T.												.0			36 . 7					
aterson hillipsburg	Passaic Delaware	T.		i				86		9	T.								T.			3-	. 12	1 .3	7 1.0		05 1. 2 16 1. 0					
	THE PARTY OF THE P	dese	ol . U	Alves				0	w		01	· U	Alexa .																			

TABLE 2.—Daily precipitation for December, 1913. District No. 1—Continued.

Stations.	Watershed.														]	Day	of m	onth	to .						1								
Stations.	watersned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Matel
New Jersey-Con.		1																															
ompton Plains	Passaic							. 18	45		1	. 08										T.	US		1 28		1 36	12					3.
omerville	Coast							. 44				. 06											. 13	. 17	1.14	. 57	. 62						3.
outh Orange	do							. 63	T.		. 10												. 20	1.42	. 40	. 40	.74						. 3.
ussex	Hudson					1						. 02							T.			.17	. 25	. 50		*	1.04						2.
renton	Delaware	T.	T.	000	2			. 38				000							T.		T.	. 17	T.	1.26	190	. 34	1 00						2.
uckerton	Coastdo		T	- Ua				. 68			00	.00							T		de.			. 03	. 78	16	85						1.
Voodbine	do		.03	3	1		1	.50			. 0											. 03	di.		*	. 60	.45						1.
			1	1		1		1			1											100	-										1
West Virginia.																																	
ayard				.03	3			. 85	. 30		T.								. 12			. 05	. 14	.24	T.	. 43	. 35	T.				T.	2.
urlington								1.80	.05																							T.	3
ranklin		7.11	T.	****				. 55						****				****	****	****	***		****	****	80	45	65	****	****				2
ost City						1		. 20	T.												. 27	.33	.39		.80	.60	.00				T.	T.	2
artinsburg		. 15						.72	T.			T.										. 33		.70		1.05 1.11	. 10			****			3
loorefield	do	T.	T.					.73				T.											T.	.45	T.	1.11	.30						2
omney	do								T.																							T.	1-2
pper Tract	do	.15						. 15	T.													T.		. 10		. 40	. 30					T.	1
Maryland.																																	
nnapolis	Coast	. 03	.04	. 05																			T.	. 81	, 02	. 10	. 95						2
	do							.31	T.		T.	T.										.03		. 82		1. 16	. 26						2
mbridge	do		.00					.33				1												. 32	. 33	.71	. 45						2
eltenham	do							.24			T.													. 62	. 03	.50	.30						1
estertown	do							****	T.		T.													. 33	. 30	. 83	. 64						2
newsville	Potomac							. 88	T.			T.		****		****						.26	10	.07		. 88	T.		****			****	2
ear Spring	do		.17				****	.33	1.			. 00	****		****	****	****	****	****	****		.07	. 10	56	.01	1.27	.71			****	****		2
ollege Park	do	T.	. 04	T.		****		.30			****	****							****	****		P\$P\$	.06	.60		*	1.31	****	****				2
mberland	do		. 05					.71		T.			T.						T.				T.	.10	. 52		. 99						2
arlington	Coast	T.	T.		3			.71	T.		T.								Т.		T.		. 04	.36	.30		. 90						2
enton	do	T.	T.	. 18				. 44	.10			T.											. 03	.21	. 45		. 74						2
ston	do	. 15	***		****	****		.22	****										****			. 05	****	.20	. 45	*	1.16						12
mmitsburg	Potomac Coast	00	T.		****	****		20	.10		T.								****		****	T.		. 47	00	20	1.23		****	****	****	****	2
rederick	Potomac		T.						.06						****	****	****	****		****	****	T.	.27	. 86	. 20	.74	.37			****			3
rostburg	do	. 19	. 02	. 02				. 60	. 03		T.	. 01							. 04			. 04			.20		.70						1
reat Falls	do							.26																			1.58						2
reen Spring Furn.	do	. 14						. 93															. 12	.74		.30	. 41						2
edysville	do Coast							. 89			m	T.										T.	.37	.74	T.	. 45	. 65		****	****			3
ake Montebello	do	T.						.32		****	T.		****									T.	.03	.79	****	1.75	1.03	****		****			2
onardtown	do							.22				T.											T.	.52		.80	. 07						1
onrovia	Potomac	.14						. 44				T.											T.	.78	. 03	.80	. 65						2
ocomoke City	Coast		. 03					. 35				T.												.39	. 01	*	1.04						1
incess Anne	do			. 05				. 55																. 49		.94	. 03						2
ockville	Potomac Coast	70	100	05								****												200	90	41						****	2
lisburylomons	do	06	04	. 00				15	. 00		****	T.		****	****	****	****	****		****				27	. 04	.41	.00	****	****	****	****	****	1
ate Sanatorium	Potomae	.20	.01					. 10				1.												.01		1.01	.52	****					2
dlersville	Coast		. 02					.54			T.								. 04			T.	. 05	. 17	.39	. 54	1.04						2
akoma Park	do	. 10					. 20	T.														. 13		. 55		1.10							2
	do	T.							****		T.	T.	****		****	****						T.	****	. 98	. 02	. 88	. 34						2
n Bibber	Potomac	.20			****									****		****			****	****			.07	. 12		. 81	. 08	****	****	****	****	****	2
estminster	Coast															****							. 90	. 42	****	. 40		****		****			-
oodstock	do	. 05						.37																.71	. 14	. 15	1.09						2
Delaware.																																	
																																	1
elaware City			70			****	1	. 67		****	70	T.				****		****	****	****	****					. 15							2.
	do	T.		.17		****	****	. 39	25		T.	T												00	21	1.00	1 14	****	****		****		3
illsboro	do	.00		-1/				52	. 20		T.	1.	****	****	****	****	****		****	****	****		****	.70	.01	.80	. 20	****	****	****	****	****	2
aford	do	T.						.34				T.											.03	. 16	. 66	.57	. 63						2
ilmington																							. 13	. 53	.50	. 87							2
istrict of Columbia.																																	
ashington	Coast	.04						. 27	T.			T.										. 06		. 61		1. 10	. 21						2
Virginia.																																	-
lpeper	Rap'ahan'ek	. 05						. 35														. 04		. 80		1. 15							2
ale Enterprise	Shenandoah	.25						. 25	T.			T.												. 46		.76	. 33					. 10	2
stville	Coast	T.	. 07					.21													T.	T.		. 40		. 45	. 23					T.	
edericksburg	Rap'ahan'ck	. 35						. 20																. 68		1.06	. 34						2
nooln	Potomac	. 12	. 01					. 46	T.			1773										T.	(III)	. 67		.30						TP.	1
ount Weather	do							- 24	T.		70	T.										T.		. 56		. 73	. 022		-#			T.	2
aunton	Shenandoah	4	. 42				T.	32			I.													34		1.38 1.30						T.	2
vetnam	Potomac	.09	. 40				1.	30			****											1.		. 73		1.00	.56						2
achapreague	Coast		T.				****	. 40																T.	T.	1.20							i
arsaw	Rap'ahan'ek	1.50											T.											. 50	.10	. 60	,50						3
inchester	Potomac																									1.13			T.				1
oodstock	Shenandoah	.20	771	I				98	PER	1		- PP		1										90									1

Precipitation included in that of the next measurement.
 Separate dates of falls not recorded.
 Precipitation for the 24 hours ending on the morning when it is measured.
 Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3 .- Maximum and minimum temperatures at selected stations for December, 1913. District No. 1, North Atlantic States.

		,				Mai	ine.						Cono	her.	Y		M	assacl	husetts	s. `			Pro	vi-	C	nnec	tiout.	
ate.	East	port.	Green	ville.	Oro	no.	Portl	land.	Pres		Rum	ford lls.	N.		Amh	erst.	Boste	on.	Midd		Nantu	cket.	den R.		Cres Hil		Hart	ford.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max	Min.	Max.	Min.	Max.	Min
3	40 36 36 37 36	34 32 32 30 28	34 34 36 34 34	24 30 29 28 27	39 36 39 40 40	25 32 32 29 31	40 38 44 41 45	34 35 35 33 34	44 40 48 50 41	28 25 30 27 20	36 37 40 39 40	25 34 34 34 36	38 40 45 41 44	33 33 34 34 30	42 43 49 43 50	34 29 33 31 37	46 45 50 47 53	37 39 37 36 41	46 47 52 46 50	39 37 38 26 37	51 46 49 45 49	42 41 38 36 42	50 47 51 45 51	37 36 35 34 42	37 50 45 42 45	32 32 34 31 30	46 46 53 45 51	3 3 3 4
	31 50 52 30 43	23 22 23 16 26	31 35 37 26 26	20 8 19 8 16	38 37 51 45 44	29 18 22 16 15	40 52 51 37 34	31 30 23 21 23	32 30 40 35 31	15 7 24 6 20	39 34 38 30 32	22 22 20 16 12	43 39 39 35 35	25 26 21 19 16	48 53 46 39 36	30 29 27 20 20	46 56 55 41 42	37 37 27 24 28	46 56 57 39 42	31 25 31 21 19	45 58 51 38 46	35 36 30 27 31	45 56 55 38 41	37 37 26 24 27	45 41 37 25 33	30 28 21 15 18	49 55 53 38 40	
 2 3	36 28 41 48 33	15 11 27 32 15	27 24 35 45 27	14 9 24 22 9	38 32 41 47 47	27 6 25 23 16	36 33 45 52 35	18 16 24 31 21	26 19 31 36 31	19 7 15 27 5	33 34 43 48 29	16 16 32 34 17	35 47 53 34	16 15 27 21 20	33 42 48 53 40	16 14 22 26 26	42 41 53 56 41	21 20 34 36 28	39 42 50 51 44	27 16 21 23 27	39 41 48 52 43	27 24 34 38 38 32	39 40 50 52 44	21 19 32 34 31	30 35 45 48 48 42	17 10 27 30 20	34 39 49 54 41	
3 7 3 9	31 43 41 26 42	17 30 26 15 18	21 34 36 20 36	7 17 19 2 10	41 41 43 41 38	14 21 22 9 14	38 48 44 27 40	26 29 24 15 21	15 25 32 30 36	- 2 14 25 4 15	29 44 40 20 34	22 26 22 10 19	37 50 42 26 38	25 31 20 12 8	34 50 44 31 41	24 34 24 16 17	44 55 48 34 46	32 38 26 18 28	45 50 45 36 44	19 28 30 17 14	48 50 45 32 48	35 37 32 22 27	46 51 45 32 44	32 36 28 20 29	40 47 41 30 44	25 28 27 13 19	42 51 44 33 44	
1 2 3 4 5	46 38 35 37 34	37 24 21 30 31	40 30 24 28 28	18 18 3 19 23	40 39 37 33 33	22 21 7 24 27	44 38 39 42 33	34 28 22 32 31	40 38 16 26 32	28 4 - 5 10 18	34 35 26 37 33	24 20 11 31 30	44 40 32 42 33	27 29 29 27 27	44 42 38 43 34	27 28 28 29 27	55 47 44 47 38	41 38 38 37 34	55 44 41 50 39	28 30 36 37 30	52 44 45 50 40	38 39 40 38 37	51 46 44 51 38	39 37 35 36 33	39 34 33 38 32	27 23 30 22 24	48 44 42 47 38	1
6 7 8 9 0	37 27 21 29 33 25	27 15 9 14 22 7	26 20 23 24 30 20	19 7 - 6 - 2 10 3	32 32 30 24 29 31	29 15 -10 -11 8 4	31 30 25 26 37 34	27 19 13 13 16 18	25 15 12 8 20 25	9 4 -15 -22 7 - 1	32 25 21 24 35 31	24 6 0 2 10 14	32 26 27 26 37 36	21 7 0 - 1 6 9	34 30 28 33 37 35	20 16 5 6 10 14	42 32 33 34 41 39	28 22 20 22 24 25	45 33 34 39 40 37	33 22 15 17 13 16	52 34 40 40 38 38	34 28 30 31 29 29	42 34 35 38 39 40	28 21 18 20 22 23	30 22 24 33 34 36	20 11 4 9 16 15	36 31 29 31 39 39	
Ins	36.2	22.9	29.8	14.6	38.0	18.1	38.7	25.1	29.6	11.5	33.9	20.4	37.7	20.9	40.7	23. 2	44.9	30.7	44.6	25.9	45.1	33.5	44.5	30.0	37.3	22. 2	42.9	28
	N							New	York.								7		P	enns	ylvania						Ath	antic
Date.	Co	nn.	Add	lison.	Alb	any.		ham- on.		lian ke.	Little	Falls.	Yo	ew rk.	Eve	rett.	Har bu		Phil ph	adel- ia.	Scrai	nton.		ate lege.	Wells	boro.	City	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min	Max.	Min	Max.	Min	Max.	Min	Max.	Min	Max.	Min	Max	. м
1 2 3 4 5	49 50 55 45 53	38 37 39 39 40	44 46 49 56 54	37 38 0 28 40	45 45 51 45 48	35 35 36 36 42	44 43 48 44 45	35 41 38 33 36	37 50 47 35 39	23 27 30 29 31	41 43 45 38 41	31 35 35 37 37	48 51 58 47 52	37 44 38 38 43	48 48 57 52 57	36 39 44 35 37	43 49 56 51 57	38 42 44 39 44	48 54 58 52 56	40 44 43 40 44	49 50 49 46 49	36 43 38 35 42	40 45 54 45 46	37 38 40 34 32			47 52 58 49 55	
6 7 8 9	53 54 53 38 42	39 40 27 25 27	48 55 50 36 36	34 38 21 16 24	47 52 37 36 36	32 32 24 21 22	45 52 30 37 34	37 27 23 18 25	33	22 23 18 4 19	42 48 45 31 31	33 32 20 11 22	50 54 48 40 44	43 46 26 27 28	54 53 30 33 41	40 38 18 23 19	53 49 33 40 38	44 33 24 26 27	53 56 38 41 39	44 37 27 29 29	48 51 32 39 38	42 32 23 23 27	48 52 35 31 38	38 35 17 20 23	*****		51 54 49 41 43	
1 2 3 4 5	34 43 50 56 44	21 20 32 33 31	33 53 54 52 46		34 45 55	16 15 25 31 25	47 50	13 10 24 25 25	35 40 43	7 0 29 21 5	37 46	33	35 46 55 53 46	20 19 38 40 33	59 61	28	53	28 27 40 38 33	37 48 58 57 47	25 25 40 38 34	32 49 52 50 44	16 14 35 38 28	33 48 54 49 49	19 35 35			57	
6 7 8 9	48 49 46 34 46	33 35 27 22 29	46 50 41 40 49	27 29 17	47 43 33	27 37 23 18 33	37	24 22	43 45 23	24 24 15 0 13	48 36 27	33	49 48 47 37 48	36 30 24	61 47 43	22 22 25 23 15	50 45 39	31 36 33 28 24	50 49 49 39 47	33 39 32 28 30	50 44 42 37 47	28 34 26 23 23	49 44 42 37 42	31 28 22			48	8
1 2 3 4 5	46 46 50	35 33 33 38 33	41 38 38 39 34	32	38 40	32 24 23 33 32	38	22 22 36	37 27 34	20	32	32 22 30	50 49	35 35 38	35 39	27 28 23 32 35	43 45 42	34 32 32 38 34	48 46 55 51 43	37 35 34 43 37	47 42 43 43 40	35 28 29 37 34	37	25 23 32			48 54 52	4 2
6 7 8 9 1	30 32 36 41	26 21 17 18 23 24	32 28 25 36	- 4 - 6 - 6 23	19 18 23 37		22 22 23 33	8 3 2 21	25 27 25 29	- 3 -14 -15 13	18 23 22 32	- 1 1 17 21	34 39 41	21 19 23 26	29 20 32 35	19 6 14 13	31 31 34 37	24 18 23 20	35 37 38 41	29	34 23 26 30 35 36	13	26 22 26 30	12 3 18 11	****		35 40 39	5

TABLE 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 1—Continued.

			New	Jersey.				Mar	tins-				Mary	land.										Virg	inia.		
				Sus	90X.	Trei	nton.	bu	Irg.					Frede	erick.					ton,	D. C.						ood- ock.
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
48 50 60 50 58	39 40 45, 32 37	47 52 54 47 51	31 42 42 35 41	48 48 54 46 46	28 35 38 33 43	48 52 57 47 54	37 44 38 37 42	45 51 60 55 63	40 40 43 37 39	47 54 61 54 63	39 46 46 40 49	48 50 58 51 58	31 41 41 32 38	46 52 60 54 60	38 42 45 37 46	44 52 55 55 60	39 42 47 37 43	48 53 61 59 63	43 45 46 33 42	46 54 61 57 64	40 44 46 40 48	48 57 66 63 70	41 43 46 34 34	43 49 61 63 66	40 39 46 32 34	45 52 59 60 71	42 42 48 31 46
55 55 55 43 40	35 41 26 25 23	52 53 52 40 39	42 41 24 24 24 24	54 52 52 34 35	38 37 23 24 23	53 55 34 40 39	41 42 25 26 27	56 56 31 39 42	39 43 22 23 25	55 55 37 42 39	46 37 25 30 27	54 51 52 40 34	35 42 21 24 21	53 52 53 41 35	43 43 23 26 24	56 70 39 37 45	45 37 18 25 24	59 60 55 47 42	34 45 24 26 21	56 55 37 42 40	42 37 25 28 24	60 57 56 45 42	32 42 25 26 19	64 57 30 40 44	39 45 18 17 25	55 59 36 42 46	32 36 25 22 20
40 49 58 58 48	27 21 27 26 30	33 48 53 53 47	24 18 36 31 30	31 51 52 56 44	17 16 30 28 27	35 49 54 54 43	21 21 36 36 32	34 57 51 61 50	27 22 23 31 32	39 56 63 57 51	29 27 40 42 37	36 51 59 55 50	28 18 24 32 32	37 54 61 57 50	32 25 41 32 27	39 56 62 56 63	30 28 37 31 28	41 51 67 62 57	29 22 32 29 29	39 58 66 59 <b>5</b> 3	29 27 33 30 33	42 60 69 63 58	33 18 26 27 34	43 53 62 56 53	33 26 37 31 29	41 59 63 54 55	32 22 25 23 27
52 80 50 40 50	25 28 36 25 22	49 49 43 36 43	26 33 29 23 21	47 48 44 37 44	21 29 33 22 20	50 51 45 36 47	30 36 29 25 26	59 57 42 42 44	27 27 37 29 20	55 56 51 42 45	33 40 36 30 29	48 50 47 40 42	28 30 36 23 21	54 59 48 41 42	26 37 40 24 20	59 52 50 47 55	27 31 34 31 20	56 56 52 49 56	25 32 35 24 22	55 56 50 42 46	32 36 34 25 26	64 60 52 44 47	24 31 40 22 24	58 60 55 44 56	33 37 41 19 27	61 58 48 45 54	24 28 36 21 20
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45 37 35 40 38 36	32 24 19 22 20 22	37 32 28 32 38 35	31 18 13 17 17 21	34 30 28 31 37 37	29 15 6 6 8 8	38 35 32 37 40 37	28 22 19 22 24 27	37 35 32 35 36 37	32 25 20 21 22 21	41 37 38 39 39 37	34 28 27 28 29 30	38 33 36 35 37 35	31 22 14 19 18 22	38 37 37 38 39 37	32 25 20 23 22 22 22	35 41 35 41 34 39	30 22 15 24 23 21	53 42 43 41 38 40	35 28 21 28 24 24	40 37 39 42 38 37	33 25 24 27 24 28	41 41 37 39 40 39	36 28 21 30 23 26	41 41 41 37 47 35	32 22 23 30 25 24	37 39 38 40 37 36	32 23 21 26 22 21
	48 50 60 50 55 55 55 55 55 55 55 55 55 55 55 55	48 39 50 45, 50 32; 58 37 55 35 55 41 55 26 43 255 40 27 49 21 58 27 58 26 48 30 52 25 50 36 40 25 50 36 40 25 50 36 40 25 50 36 40 25 50 36 50 36	ton. bu  Max. Min. Max.  48 39 47 30 40 52 60 45, 54 30 32 47 38 37 51  55 35 52 65 41 53 55 26 52 43 25 40 40 27 33 49 21 48 58 27 53 58 26 53 48 30 47 52 25 49 60 28 49 60 26 36 60 27 33 48 30 47 52 25 36 50 22 43 47 37 45 55 30 46 55 32 43 45 32 43 45 32 43 45 32 43 46 32 43 47 37 45 56 30 46 45 32 48 47 37 45 56 30 46 45 32 43 47 37 45 56 30 46 48 32 43 48 32 43 49 22 38	ton. burg.  Max. Min. Max. 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Sussex.  Max. Min. Max. Min. Max. Min.  48 39 47 31 48 28 50 40 52 42 48 35 60 45 54 42 54 38 55 32 47 35 46 33 38 37 51 41 46 43 55 35 52 42 54 38 55 41 53 41 52 37 55 26 52 24 52 23 43 25 40 24 34 24 40 23 39 24 35 23 40 27 33 24 35 23 40 27 33 24 35 23 40 27 33 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 58 27 53 36 52 30 40 27 38 48 30 47 30 44 27 52 25 49 26 47 21 52 25 49 26 47 21 52 25 49 26 47 21 53 24 32 34 33 40 25 36 23 37 22 47 37 45 35 42 32 47 37 45 35 42 32 48 29 44 33 40 25 36 23 37 22 47 37 45 35 42 32 48 36 41 33 45 32 48 29 42 32 47 37 45 35 42 32 48 36 41 33 45 32 48 36 41 33 45 32 48 36 41 33 45 32 48 36 41 33 45 32 48 36 41 33 36 22 38 17 37 6	Max.         Min.         Max.         Min. <th< td=""><td>ton.         burg.         sussex.         1 renton.           Max.         Min.         Max.         Min.         Max.         Min.         Max.         Min.         Max.         Min.         Max.         Min.           48         39         47         31         48         28         48         37           50         40         52         42         48         35         52         44           60         45         54         42         54         38         57         38           37         51         41         46         43         54         42           55         35         52         42         54         38         53         41           55         41         53         41         52         23         34         25           40         23         39         24         34         24         40         26           43         25         40         24         34         24         40         26           40         27         33         24         31         17         35         21           49         21</td><td>  Bridge</td><td>Max.         Min.         Max.         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Min. <th< td=""><td>  Bridge</td><td>  Bridge</td><td>  Bridge</td><td>  Bridge</td><td>  Bridge</td><td>  Bridge</td><td>  Nax.   Min.   Max.   Min.  </td><td>  Nax.   Min.   Max.   Min.  </td><td>  Nax   Min   Max   Min   Max</td><td>  Nax   Min   Max   Min   Max</td><td>  Phillips-    Phillips-                                     </td><td>  Bridge</td><td>Bridge- ton.    Phillips-   Balti-   B</td><td>  Bridge</td><td>  Bridge</td><td>  Bridge</td><td>Bridge   Phillips   Susux   Min.   Max   Mi</td></th<>	Bridge	Bridge	Bridge	Bridge	Bridge	Bridge	Nax.   Min.   Max.   Min.	Nax.   Min.   Max.   Min.	Nax   Min   Max   Min   Max	Nax   Min   Max   Min   Max	Phillips-    Phillips-	Bridge	Bridge- ton.    Phillips-   Balti-   B	Bridge	Bridge	Bridge	Bridge   Phillips   Susux   Min.   Max   Mi

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

# CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

#### GENERAL REMARKS.

The last month of the year 1913 was quite without noteworthy meteorological features. It was a comparatively mild winter month, although during the only really cold snap, from the 8th to the 12th, the lowest temperatures for the year were registered at some stations. The precipitation was generally below normal, except in Florida and the Carolinas, nevertheless there was more cloudy, damp weather than usual over the Gulf States from Georgia westward to Mississippi. The percentage of sunshine for the month was less than 40 at all of the regular stations from Atlanta westward to Meridian. The snowfall was light, measurable amounts occurring only in northern Mississippi and western North Carolina. Owing to the passage of a moderate barometric depression from southwest to northeast over the district, December 24 to 25, Christmas was a disagreeable day, with rain in all sections, snow flurries at many places, and high winds on the coast.

The lowest atmospheric pressure for the month occurred throughout the district on the 25th, with a minimum of 29.31 inches at Cape Henry, Va. The highest occurred at all points on the 9th, with the maximum, 30.59 inches, at Meridian, Miss.

#### TEMPERATURE.

The temperature was above normal in all portions of the district, the excess averaging about 2°, but increasing to over 5° in north-central Virginia and in the north-western portion of North Carolina. The first week was quite warm, the highest temperatures for the month occurring in the southern portions of the district on the 1st, in the northern portions on the 4th to 7th, with occasional high temperatures as late as the 17th. The maximum exceeded 80° in all of the Gulf States. A decided change to colder weather took place on the 8th, followed during the next five days by the lowest temperatures for the month and at some stations in the southern portion the lowest for the entire year. Heavy to killing frosts occurred on the 9th to 12th as far south as Thomasville, Ga., and Jacksonville, Fla., and minimum temperatures as low as 30° with frosts occurred in the central portion of the Peninsula of Florida, and as low as 23° in the extreme northern portion. A long period with tem-perature moderately above normal followed, but during the last week it was again below normal, but only moderately so.

The mean temperature for the district was 49° and the excess 1.9°. The highest monthly mean was 71.2° at Key West and Sand Key, Fla., and the lowest was 36.2° at Hot Springs, Va., but as a rule the monthly means ranged mostly between 45° and 55°, except in Florida, where they were somewhat higher. The highest temperature in the district was 85° on the 1st at Valdosta, Ga., and on the 17th and 23d at 10 stations in Florida; the lowest was 12° on the 8th at Lenoir, N. C., and on the 9th at Mineral Bluff, Ga. These extremes are well within the limits of previous years.

#### PRECIPITATION.

Although the precipitation was generally below normal, except in Florida and the Carolinas where small excesses

occurred, it was generally well distributed, the averages for the several States not departing materially from the mean for the district. The greatest amounts, ranging from 4 to 8 inches, occurred in the southwestern portion of North Carolina, in western South Carolina and northern Georgia, in west-central Florida, and over much smaller areas in some other States. The smallest amounts occurred at the northern and southern extremities of the district, at Hot Springs, Va., and Key West, Fla.

Moderate rains fell on the 1st and 2d, 7th and 8th, 20th to 26th, and 29th to 31st in the northern portions of the district with longer periods of fine weather than in the south, where rains became more frequent after the middle of the month, and there were very few fair days after the 14th. No heavy 24-hour rains occurred in Virginia, Georgia, or Mississippi, and at comparatively few stations in other States, mostly on the 1st, 25th, or 28th–29th, with a maximum of 3.40 inches at Thomasville, Ala., on the latter date.

Snow flurries occurred at many stations in northern Mississippi, northern Alabama, and Georgia on the 24th or 25th, with the largest measurable amount, 4 inches unmelted, at Booneville, Miss., and also in North Carolina on the 31st, with the largest amount, 3 inches, at Brewers.

The average precipitation for the entire district was 3.48 inches and the departure -0.35 inch. The greatest monthly was 8.74 inches at Mount Holly, N. C., and the least, 0.29 inch, at Key West, Fla.

#### MISCELLANEOUS PHENOMENA.

Westerly winds prevailed during the month in Georgia and the Carolinas, northerly winds in Alabama and Mississippi, and northeasterly winds in Virginia and Florida. At all the coast stations the average hourly velocity exceeded 10 miles. High winds occurred at Norfolk and Cape Henry, Va., on the 8th, at Pensacola on the 24th, and at most other regular stations on the 25th, with maximum velocities of 58 miles from the west on the 8th at Norfolk and 54 miles from the southwest at Savannah on the 25th. The average number of cloudy days was 12, partly cloudy 7, clear days 12, and days with rain 8. The average number of hours of sunshine for the district (mean of 18 stations) was 149, and the percentage of the possible amount was 48. The least sunshine was received at Meridian, Miss., 34 per cent. and the maximum at Miama Fla. 64 per cent.

cent, and the maximum at Miama, Fla., 64 per cent.

Note by Mr. W. F. Reed, jr., Pensacola, Fla.—Marked variations of pressure due to the rapid northeastward movement of a storm from the Rio Grande Valley is shown by the barograph record on the 24th. The pressure fell from 29.97 inches at 10 a. m. to 29.56 inches at 7 p. m., but then it rose to 29.71 inches at 9 p. m. and fell again to 29.56 inches at 10 p. m. The wind reached an extreme velocity of 50 miles at 8.41 p. m. The easterly and southerly winds caused slight damage along the water front. Three lumber-laden lighters owned by C. H. Smith & Sons went ashore near the foot of C Street and a number of other lighters dragged their anchors. A quantity of lumber broke loose in the booms but did no damage.

### RIVER CONDITIONS.

The rivers are generally low during the month throughout the district, but in South Carolina moderately heavy rains on the 29th and 30th caused unimportant floods at the close of the month in the Saluda, Wateree, Congaree, and Santee Rivers and high waters in the Broad. The highest stages were at Camden on the Wateree, 27.5 feet on the 31st (flood stage 24 feet); at Chappells on the Saluda, 16.7 feet (flood stage 14 feet). The flood stages at Ferguson and Rimini on the Santee were exceeded by a few tenths of a foot.

#### CLIMATIC SUMMARY FOR THE YEAR 1913.

The winter months of the year 1913, both at the beginning and end of the year, were quite mild, especially January and February. Excepting in July, however, there was a general tendency to temperatures below normal from April to October, culminating in the greatest deficiencies in September. No temperatures below zero occurred in the district during the year.

The maximum rainfall was received, as in the preceding year, in March and caused destructive floods in the rivers of the district. March was also noteworthy as an extremely stormy month, local tornadoes occurring at numerous places in the Gulf States. During the growing season from April to August, inclusive, the precipitation averaged below normal, with frequent tendencies toward drought, and while the precipitation was above normal in September and October, the year closed dry, seemingly indicating a return to conditions that had prevailed for many year, preceding the unusually wet year 1912. Comparatively little snow fell during the year.

July, which was preceded and followed by three relatively cool months, was excessively warm, record high temperatures occurring at a large number of stations. Another striking feature of the year was the large number of severe thunderstorms during the summer and the unusually large number of deaths by lightning.

The following table gives the monthly mean temperatures and the average rainfall for the district with departures from the normal for the year 1913:

Month.	Temper- ature.	Departure.	Precipi- tation.	Depar- ture.
January	53.7° 48.8	+7.9° +1.7	4.19 4.30	+0.58
March	57. 2° 61. 7°	+1.1 -0.4° -0.2	7. 24 2. 45 3. 59	+2.66 -0.96 -0.46
June July	76. 1 80. 7	$-1.0 \\ +1.1$	4.36 5.36	-0.70 -0.41
AugustSeptemberOctober	72.4°	$ \begin{array}{r} -0.1 \\ -2.0 \\ -1.1 \end{array} $	4. 10 5. 75 3. 22	-1.53 $+1.66$ $+0.2$
November	55.8° 49.0	+1.3° +1.9	1.71 3.48	-0.9° -0.3°
Year	64.0	+0.8	49.75	-0.7

The lowest temperature registered during the year was 3° at Hot Springs., Va., on February 13. The lowest monthly mean temperature was 33.6° in February at Hot Springs, which also had the lowest mean temperature for the year, 53°. The highest temperature for the year was 110° at Talbotton, Ga., on July 19, probably the highest temperature that has ever occurred in the southeastern part of the United States. The highest monthly mean temperature was 84.7° at Clermont, Fla., in July. The highest annual mean was 77° at Key West, Fla.

March and September were the wettest months of the year. The largest amount of precipitation for any month was 23.44 inches at Daphne, Ala., in September; Apalachicola, Fla., received 22.87 inches in the same month. The smallest amounts generally occurred in November, Fort Gaines, Ga., in the lower Chattahoochee Valley, receiving no precipitation whatever, and Rockwell, Fla., only a trace. The maximum rainfall in 24 hours was 7.47 inches at Fort Myers, Fla., on August 24, closely followed by 7.40 inches at Mobile, Ala., on September 13–14. The maximum snowfall was 8 inches at Neuse, N. C., on February 13–14.

TABLE 1.—Climatological data for December, 1913. District No. 2, South Atlantic and East Gulf States.

W.			, years.	Temp	erature	, in (	degre	es Fal	rent	ieit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	ainy or m	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	rind	Observers.
Virginia.									-											
ArvoniaBuchananCallavilleCape HenryCatawba	Brunswick Princess Anne	350 820 250 20 1,760	9 9 19 39 2	42.5	+ 5.2 + 2.0 + 1.4	71 71 67 66	5 7 8	19 17 28 14	19 9† 28 8	40 32 52	2.68 3.23 3.79 1.45 2.90	- 0.34 + 0.33 + 0.54 - 1.98	0. 90 0. 93 1. 17 0. 51 0. 90	0 0 0	7 8 7 8 5	16 18 14 20	8 5 6 8	8 11 3	n. ne. w.	Rev. Plummer F. Jones. D. D. Booze. F. M. Gage. U. S. Weather Bureau. State Board of Health Sar
Charlottesville	Albemarle	800	24	43.8	+ 6.1	72	6	21	8	36	1.67	- 1.50	1.10	0	5	14	6	11	w.	Leander McCormick Obse
ClarksvilleColumbia Dan villeDiamond Springs	Fluvanna	286 246 413 25	19 15 13 3	42.0	+ 3.9	68	5	18	10	39	3.65 2.25 3.27 1.90	+ 0.66 - 1.36 - 0.19	1. 01 1. 05 0. 77 0. 76	0 0 0	7 4 7 7	17	9	5	ne.	yatory. J. A. Ligon, Chesapeake & Ohio Ry. Co. C. G. Watkins. Virginia Truck Experime
Dry Bridge Hot Springs Ivor	Bath	325 2, 195 87	2 21 4	36. 2 42. 2	+ 4.2	55 69	6 5	15 19	9 9†	29 41	2.74 0.46 2.26	- 2.72	0.90 0.34 1.02	T. 0	6 2 6	20	7	4		Norfolk & Western R
Lassiter Lexington Lynchburg Newport News	Rockbridge Campbell Warwick	100 1,060 685 55 91	3 36 42 10 43	38.8 43.5 43.8 45.5	+ 3.6 + 5.2 + 2.5	64 70 66 68	4† 5 13 5	23 24 27	10 8 16 12	39 34 33 28	2.85 2.41 3.56 1.72 1.68	- 0.39 - 0.71 - 1.81	1. 43 0. 98 0. 82 0. 76 0. 71	T. 0 0 0	4 5 6 10 8	23 15 12 15 13	2 7 9 6 3	6 9 10 10 15	w. ne. n.	Experiment Farm. T. J. Davis. Virginia Military Institute. U. S. Weather Bureau. C. W. Ashby. U. S. Weather Bureau.
PetersburgRandolphRichmond.Roanoke.Rocky Mount	Dinwiddle Charlotte Henrico Roanoke	60 334 144 907	26 9 34 3 19	42.2 42.2 41.6	+ 4.3	68 66 69	5 5 7	24 23 18 26	9 8 19	35 32 29	3. 69 3. 08 2. 17 2. 98 3. 59	+ 0.60 - 0.83 + 0.18	2. 01 0. 82 0. 95 1. 06	0 0.2 0	6 7 7 7 6	14 20	4 6	13	ne. w.	Walter Edward Harris. W. J. Abbitt. U. S. Weather Bureau. Capt. Reese F. Bell. G. W. B. Hale.
Ruckersville. Runnymede (near) Stuart West Point	Surry	1, 150 625 15 1, 188 15	2 25 1 1	46.5 40.0 43.2 40.6 43.3	+ 7.8	71 65 69 68	5 13† 5† 5	17 19	19 12 10† 16†	45 39		- 0.21	1. 40 0. 82 1. 00 0. 74 0. 73	0 0 T. T.	6 8 9	14 13 17	2 11 2	15 7 12	sw. n. s.	Dr. Jesse Ewell. B. W. Jones. Miss Etta Rickman. C. L. Maskey.
Williamsburg North Carolina.	James City	70	22	42.6	+ 1.7	65	5	21	9	31	2.70	- 0.99	0.90	0	6	17	4	10	ne.	Eastern State Hospital.
Albemarle Altapass (near). Beaufort. Belhaven Berwers. Caroleen Chalybeate Springs. Chaple Hill Charlotte. Chimney Rock Durham (near). Eagletown Edenton Elizabeth City Elizabeth City Elizabeth Company Elizabeth City	Mc Dowell Carteret. Beaufort Wilkes Rutherford. Harnett. Orange. Mecklenburg Rutherford. Durham Northampton Chowan. Pasquotank. Bladen Surry Halifax Cumberland. Caldwell Alamance Gailford. Pitt. Dare Vance. Catawba Clevelland Lenoir Caldwell Cartered Car	700 2, 133 10 4 1, 950 500 500 500 713 1, 150 406 66 66 63 8 8 60 874 99 170 1, 800 102 1, 358 656 843 75 75 75 75 11 508 61, 186 952 46 61, 186 994 937 102 112	12 4 16 13 7 55 37 3 4 8 19 1 1 2 2 2 2 6 1 1 1 3 2 2 0 3 9 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	44. 0 44. 2 44. 6 45. 1 43. 8 44. 8 46. 0 43. 6 43. 6 43. 6 43. 6 43. 6 43. 6 47. 0 42. 4 40. 8	+ 2.6 + 5.2 + 2.8 + 1.8 - 1.8 + 1.8 - 2.9 - 0.4 + 2.9 - 0.4 + 3.1 + 3.1 + 3.8	666 70 76 69 71 68% 67 70 65 65 65 65 71 71 70 72 72 72	5 5 4† 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	22 20 22 23 33 21 20 21 19 19 12 14 16 21	12 12 12 9† 10	39 44 35 26 35 32 32 32 35 35 39 36 28 18 31	4.37 3.68 4.57 4.48 3.17 2.70 3.33 3.75 3.33 3.75 3.36 4.42 5.64 4.42 5.64 4.42 4.43 4.79 4.21 4.03	- 1.90 + 0.27 - 0.13 + 0.71 - 0.21 - 0.21 + 0.69 - 0.16 + 0.34 + 2.23 - 0.16 - 2.17 + 0.13 + 0.52	1. 19 0. 93 0. 93 0. 95 0. 82 1. 94 1. 194 1. 195 1. 150 0. 99 1. 155 1. 62 1. 05 1. 62 1. 05 1. 63 1. 13 1. 26 0. 73 1. 26 0. 73 1. 26 0. 74 1. 13 1. 27 1. 28 1.	0 2.3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		17 19 16 13 13 8 15 10 15 12 12 13 15 12 14 16 9 11 17 10 17	4 5	13	n. n. n. w. nw. ne. w. ne. sw. ne. sw. nw. ne. sw. n. ne. nw. n. ne. nw. ne. nw. nw. ne. nw. nw. nw. nw. nw. nw. nw. nw. nw. nw	M. J. Harris. R. F. Brewer. Lewis Radcliffe. A. L. Bell. W. L. Brewer. S. B. Tanner. J. A. Smith. Prof. A. H. Patterson. U. S. Weather Bureau. J. M. Flack. J. C. Michie. J. T. Elliott. E. R. Conger. W. J. Simmons. H. H. Barnhill. Mrs. Cynthia L. Myers. T. S. Inborden. Frank Glover. Julius L. Gragg. Mrs. J. J. Robinson. A. J. Bagley. Dr. W. R. Goley. A. R. Horry. R. M. Hearne. U. S. Weather Bureau. Enoch Powell. Frank B. Gwin. G. T. King. H. C. V. Peebles. Hubert Ivey. S. P. Houser. T. B. Wilder. B. M. Davis. U. S. Weather Bureau.
Marion. Moncure Monroe. Morganton Morganton Morganton Mount Holly. Nashville Neuse. Newbern. N. Wilkesboro (near). Parkersburg Pinehurst. Raleigh Ramseur. Randleman Reidsville. Rock House. Rock House. Rocky Mount Rougemont Salisbury. Saxon. Sectland Neck Settle. Sloan. Smithfield Southern Pines	McDowell Chatham Union Burke. Gaston Nash Wake Craven Wilkes Sampson Moore Wake Randolph do Rockingham Macon Richmond Nash Durham Rowan Stokes Halifax Iredell Duplin Johnston	1, 425 145 586 1, 135 616 190 266 121, 700 211 650 390 442 810 828 3, 100 210 105 549 760 900 50 151	21 19 19 26 16 9 1 31 1 1 9 42 6 8 14 21 18 2	43. 4 45. 0 43. 4 44. 8 50. 0 46. 0 45. 0 43. 0 43. 8 41. 1 45. 0 44. 0 43. 4 47. 8 43. 4 43. 6	+ 2.4 + 1.9 + 3.3 + 2.3	71 72 70 70 68 77 72 71 68 72 68 67	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	22 14 19 <sup>1</sup> 21 20 14 19 <sup>1</sup> 20	10 8 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	41 34 29 46 37 26 40 38 45 44	8. 74 3. 66 4. 40 2. 97 4. 60 6. 35 2. 48 3. 80 2. 81 4. 64 6. 40 5. 51 2. 50 3. 73 4. 45 4. 23 3. 07 4. 41 4. 65	- 0.72 + 0.63 - 0.24 - 0.85 + 1.53 + 0.70 + 0.75	1. 23 0. 99 1. 08 1. 75 2. 96 1. 20 1. 20 2. 00 1. 30 1. 30 1. 25 3. 1. 30 1. 30 1. 79 1. 85 0. 45 1. 70 0. 96 2. 05 1. 74 0. 87 0. 75	T. 0 0 T. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 3 10 8 10 10 10 5 8 8 7 5 8 8 7 8 7	17 16 13 17 13 12 14 22 13 13 13 14 11 11 19	7 8 3 9 0 1 10 5 3	12 10 14 11 10 14 11 10 16 8 11 11 13		Sergt. Thomas McGuire. B. J. Ufley. T. A. Ashcraft. J. B. P. Massey. J. W. Holland. J. B. Boddie. E. M. Allen. J. B. Hill. John Johnston. E. J. Conway. General Office. U. S. Weather Bureau. A. H. York. L. D. Mendenhall. E. M. Redd. Barry C. Hawkins. H. S. Ledbetter. G. P. Womble. H. L. Carver. Miss Thelma Wilkinson. L. A. Duncan. J. Y. Savage. C. H. Smith. D. N. Sholar. Edwin S. Sanders. Mrs. P. H. Beck.

Table 1.—Climatological data for December, 1913. District No. 2—Continued.

			years	Temp	perature	, in c	degre	es Fah	rent	neit.	Prec	ipitation	, in in	ches.	iny days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
North Carolina - Contd.																		10		W 0 7 7 7
Southport	Brunswick	18 590	51 25	50.2	+ 1.0 + 4.2	66 73	6†	24 17	9	29 38		+0.59 $+1.48$	1.65 2.44	0.1	8 7	11 12	8	12 8	ne. sw.	Mrs. C. E. Taylor. D. Matt Thompson.
Tarboro	Edgecombe	50	28	45.2	+ 4.2 + 2.2	70	6	21	10†	40	3.46	- 0.29	0.80	T.	11 6	15	4	12		E. V. Zoeller. W. T. Lindley.
Tryon (near)	Polk Halifax	1,300	41	42.4	+ 1.6	70	5	21	12	46	4. 10 2. 62	- 0.90	2.00 0.85	0	8	12	7	12	w.	H. S. S. Cooper.
Willard	Pender	51	5	47.0		78	6	19	9	41	4.74		1.56	0	7	19	3 9	9	n. w.	J. H. Jefferies. U. S. Weather Bureau.
Wilmington Winston-Salem	New Hanover Forsyth	1,000	42 18	49.6	+ 2.4 + 1.1	72 70 s	6 4	27 15°	9	30 43		+ 0.51 - 0.21	1.26 1.32	0	11 6	11				Rev. H. E. Rondthaler.
South Carolina.																				W M D-
liken	AikenBarnwell	527 186	18 24	49.3b 50.2	+1.2 + 2.8 + 4.0	69 73	5 1 4	24 21 19	10	34 38	3.23 2.20	- 0.23 - 0.42	1. 10 0. 70	Т.	6	****			sw.	W. M. Brown. S. B. Rouse.
nderson	Anderson	764 656	11 24	47. 8d	+ 4.0	70 68	5	19	27 10	35 37	5.06	+ 2.84 + 2.40	1.96 1.02	т.	10	11	0	20	w.	H. H. Russell. E. J. Hite.
BatesburgBeaufort	Lexington Beaufort	21	26	53. 0h	+ 0.8 + 1.2	74	6	28	10	27	2.26	-0.38	1.50	0	5				ne.	Miss Lillian H. Rice.
Blackville	Barnwell	296 293	23	49.8	+ 2.9	73	5	19	10	48	2.65 6.67	- 1.03	0.70 2.70	0	11 10	11	0	20		Mrs. D. B. Sanders. J. N. Owens.
BlairsBowman	Orangeburg	160	11	48.2	+ 1.9	72	6	16	10	48	2.48	- 0.92	1.08	0	7	13	7		W.	B. O. Evans.
Broxton			19			****				****	1.79 6.03	+ 2.09	0.60		8 12	****		****		Thomas D. Williams. L. M. Parker.
Calhoun Falls	Kershaw	508 222	46	48.6		73	7	20	10	35	4.19	+ 0.88	1.20		13	16	3		ne.	W. C. Brown.
Catawba	York	562	7								5.36		1.52		11 10		****			James C. Faris. J. J. Murran.
Chappells	Newberry Charleston	402 48	7 42	52.0	+ 0.7	72	6	31	9	23	5.95 2.59	- 0.56	2.42	0	10	7	9	15	n.	U. S. Weather Bureau.
Cheraw	Chesterfield	144	24	46.1	+ 2.1	72	5	31 20	10	36	5.39	+ 2.26	1.76	0	14				******	J. H. Powe. Prof. F. H. H. Calhoun.
Clemson College	Oconee	850 351	21 26	45.8	+ 3.7 + 1.0	65 70	5	19 24	10	37	5.08 2.93	+ 0.28	1.40	T.	11	9	8	14	ne.	U. S. Weather Bureau.
onway	Horry	25	20	48.2	+ 0.5	72	6 7	21	10	40	4.13	+ 0.03 + 0.83	0.97		10	14	U	16	n.	Paul Quattlebaum.
Darlington	Darlington	175 100	17	46. 4b	+ 1.0	73 72	7 4	19 22	10	40 38	3.50	+ 0.35 + 0.63	1.20	0	10 11					
Dillon	Marion Edgefield	100		41.2	+ 1.0	14	2		10	90	2.63		1.01		5					T. L. Timmerman.
Edisto	Bamberg	127	25 20					*****			2.76	- 0.33 + 0.52	0.95 1.26		11 9					
Effingham	Florence Berkeley	106 51	4	50.9	+ 2.8	77	27	20	11	37		+ 0.06	1.13		11			****	ne.	Joseph P. Simons.
lorence	Florence	136	24		+ 3.4	77	6	23	10	41	3.28 4.98	+ 0.19	1.00	T.	8					H. K. Gilbert. Harry A. Parshall.
Paston Shoals	Cherokee	12	19	50.3	+ 1.3	75	6	22	10	40	4.40	+ 0.71	1.98	0	4	13	12	6	n.	A. P. Hazard.
Freenville	Greenville	989	20	44.9	+ 4.3	67 68	5	22 19	10 9	40	4.64	+ 0.21 + 1.16	1.32		8	14	4	13	W.	Spartan Goodlette. M. M. Calhoun.
Greenwood	Greenwood Lancaster	671 568	24	44.6	+ 3.3	68	6	21 21 20	10	33	5.70	T 1.10	1.90	0	8 7	11	7	13	W.	J. Marvin Bowers.
Kingstree	Williamsburg	54	24	48.6	+ 1.4	74	6	20	10	41	3.41	+ 0.10	1.00		6 7	13	8	10	e.	A. O. Matthews.
Liberty Little Mountain	Pickens Newberry	900 711	18	47.9	+ 1.3 + 2.1	67	13 5	18 24	10 9	44 28	4. 21	+ 1.10 + 0.83	1.00	0	9	13	0	18	ne.	John T. Boggs. J. M. Sease, M. D.
feriwether	Edgefield		3	48.0		70	5	19	10	44	3.44		0.59	T. T.	10	6	3	24 17	w.	Joseph M. Johnson.
Monetta		502	8	48.6	+ 1.4	69	5 6	23 20	9 10	31 39	3.46	+ 3.04	0.63	T.	9	8	10	13	e.	W. G. Peterson.
Pelzer	Anderson	873	7								5.88		1.60		12		0	19	nw.	Joshua Y. Jones. Miss E. P. Ravenel.
Pinopolis St. Matthews	Berkeley	54 269	19 24	48 8	+ 2.7	74	5	23	9	40	3.09	+ 1.23 - 0.25	1.70 0.95	0	12	12		19	TIW.	J. S. Wannamaker.
Saluda	Saluda	536	10	47.4	+ 2.8	68	5	19	10	41		+ 1.96	0.95	0	1 8	12	7	12	n.	Mrs. F. V. J. Maxwell. E. W. Jeter.
Santuck	Union	512 62	17			68	5	20	10	35	5.98 3.45	+ 1.96 - 0.47	1.25	T.	10	7	11	13	ne.	W. G. Walker.
Smith Mills	Darlington	192	15	45.4	+ 0.1	71	5	20	9		5.08	+ 1.93	1.35	T.	10	9	12	10	nw.	Rev. T. Ellison Simpson F. P. Robinson.
Spartanburg	Spartanburg Dorchester	875 75	21 15	44.2	+ 2.0	71 77	5	19 20	9			+ 1.50 - 0.97	1.43	T.	10	5	19	7	SW.	Miss E. H. Gadsden.
Summerville Trenton	Edgefield	620	15	48.5	+ 0.1 + 2.0 + 2.6 + 1.6	70	6	24	9	31	2.99	- 1.05	0.75	0	8	9	12	10	e.	C. A. Long.
Winnsboro	Fairfield	545 690	22	77.6"	T 2.0	65	5 5	28 20	9	30	5.77	+ 2.66 + 0.27	2.00	0	9 6	9	12	10	W. SW.	J. W. Seigler. W. P. Goodman.
Winthrop College Yemassee	York Hampton	24	13	49.4	+ 1.3 + 1.8		23	18	10		2.86	- 0.71	1.65	0	7					J. G. Hutson.
Georgia.																				
Abbeville	Wilcox	180	10	46.0	14.4	65	····	19	10	38	2.63 3.55	-1.45 -1.25	0.98 1.32	0	11 6	8 15	1 2	22 14	n.	W. H. Calhoun. Mrs. R. C. Evins.
Adairsville Albany	Bartow Dougherty	772 232	21 26	52.8	+1.7	82	1	26	10	34	2.59	-1.18	0.93	0	9	8	6	17	n.	Mrs. R. C. Evins. George C. Brosnan. J. F. Rice.
Illapaha	Berrien	293	23	52.1	+1.4	80 75	1	20 25	10	38	1.93	-1.68	0.76	0	10	6	7	18	e. w.	J. F. Rice. Joseph M. Bryan.
Americus	Sumter	362 694	28	50.0 45.8	+0.5	67	5	19	9	40	4.53	+0.41	0.98	0	10	10	6	15	W.	Joseph M. Bryan. C. D. Cox.
tlanta	Fulton	1,218	48	45.9	+2.0	65	17	23	9	23	3.95	-0.63	1.35	T.	13	6 5	3	22 20	w. nw.	U. S. Weather Bureau. Do.
Atlanta	Richmond Decatur	180 119	67 21	48.9 53.2	+1.5	69 83	5	25 21	10		2.36	$\begin{vmatrix} -1.17 \\ -1.37 \end{vmatrix}$	1.02	0	7	11	2	18	ne.	W. H. Morrow.
Bainbridge	Taylor	650	12								2.22	-2.09	0.77	0	6	13	3	15	W.	Mrs. M. F. Wallace.
amak	Warren	613 894	21	48.8	+3.8	70	5	23	9	36	3.02	-1.01 $-1.18$	1.02	0	10 8	8 7		19 20	w. ne.	J. A. Chapman. Mrs. Ada P. Mills. M. C. Power.
antonarlton	Madison	557	14	*****							4.76	-0.14	1.33	0	9	16	0	15	W.	M. C. Power.
lavton	Rabun	2,100	19	43.8	+3.2	69 70	5†	17 26	10		7.11 2.55	+0.59 $-2.33$	1.27	0		19		12 20	nw.	A. J. Duncan. A. J. Land.
olumbus	Muscogee Pike	262 850	25	50.0 46.2	+1.8	66	5 5†		91		3.63		1.40	0	9	14	2	15		C. T. Smith.
ovington	Newton	800	21		100					36	4.65	+0.28	0.95	0		10		17	e. nw.	Mrs. Sarah E. Cruse. Prof. B. P. Gaillard.
Oahlonega	Lumpkin Laurens	1,519 452	21	44.0	+2.5	66	5 5	17 20	10	40	2.54	-1.26	0.64	0	13	8	9	14	W.	Prof. B. P. Gaillard. Mrs. M. E. Martin.
Eastman	Dodge	361	21	51.1	+3.1	75	1	23	10	32	2.05	-1.56	0.74	0	10	8	5	18	ne.	Mrs. Grace Bohannon. Prof. W. C. Wright.
Estonton	Putnam Elbert	577 710	9 21	46.4d 47.0	+2.2	66	5	20 20	9	32	3.35 5.78	-0.92 + 1.49	1.10	0	7	ii	8	12	w.	H. A. Roebuck.
Experiment	Spalding	946	12 25	47.7	+3.2	65	5†	25	9	32	3.71	-0.76	1.10	0	8				no.	J. H. Kimburgh. Miss Eva T. Graham.
Fort Gaines	Clay	116	25 34	51.0 42.6	+1.6	78 66	1 6	23 14	10		1.71	-2.96 $-0.60$	0.60	0		10	2		ne. w.	W. C. Walker.
Gainesville	do	1,254 1,052	21		70.8		0				4.94	+0.89	1.20	0	9	12	0	19	e.	George W. Lichtenstine
Glennville	Tattnall	729	8	51.8	120	75	1	23 18	10		1.61 5.37	-0.67	0.95	0		10	7	13	nw.	Miss Fannie Barnard. H. M. Ponder.
Greensboro	Chattooga	729 598	14	45.1	+3.9 +2.1	67	17	20	9		3.57	-0.95	0.88	0	11	10	2	19	ne.	R. L. Caldwell.
Griffin	Spalding	975	24								4.38	-0.51	0.94	0	9	11	7	13	n.	J. M. Mathews. Joseph Jackson.
Harrison	Washington	378	14	48.0	+1.4	66	1	23 23	10	32	2.25	-1.64	0.55					12		W. B. McMullan.

Table 1.—Climatological data for December, 1913. District No. 2—Continued.

			years	Temp	erature	, in c	degre	es Fah	rent	neit.	Prec	ipitation	, in in		days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
Georgia—Continued.																				
lawkinsville lighland Dam lisbon	Muscogee Lincoln Cobb Jefferson Telfair Stewart Bibb Macon Baldwin Jenkins Fannin Macon Jasper Coweta Gwinnett Irwin Oglethorpe Worth Marion Brooks Murray Gordon Floyd Charlton Chatham Bulloch Talbot Haralson Thomas Stephens Lowndes Wurke	326 1,175 259 150 650 370 500 276 158 1,571 292 800 959 1,078 600 365 173 900 657 576 65 253 7,1050 200 630 131 866	17 6 13 20 4 18 32 20 25 25 8 18 24 3 23 23 23 23 21 3 27 20 9 19 54 6 6 6 2 19 19 19 19 19 19 19 19 19 19 19 19 19	48. 4h. 46. 6 44. 9 48. 8 50. 7 50. 5 47. 6 45. 4 46. 2 46. 2 46. 2 48. 4 44. 6 43. 8 44. 6 44. 6 45. 4 44. 6 45. 6 45. 7 45. 6 46. 2 47. 4 46. 2 47. 4 47. 4 48.	+2.4 +1.3 +1.9 +1.9 +2.5 +1.5 +0.4 +3.6 +2.6 +4.9 +0.9 +0.9 +1.6 +2.0 +3.4 +1.1 +1.1 +1.8 +3.2 +2.6 +3.4 +2.6 +3.4 +2.6 +3.4 +2.6 +3.4 +2.6 +3.4 +2.6 +3.4 +3.6 +3.6 +3.6 +3.6 +3.6 +3.6 +3.6 +3.6	68 68 63 65 70 68 70 67 67 67 67 67 67 67 67 80 64 84 68 84 69 74 77 71 71 65 83 71 71 71 71 71 71 71 71 71 71 71 71 71	5 17 22 1 5 1 5 1 5 1 5 1 1 5 1 1 5 1 1 1 5 1	21 17 21 22 22 21 12 22 22 21 12 22 2	9 10 10 10 10 10 10 10 10 10 10 10 10 10	33 35 38	1. 18 2. 34 3. 48 3. 74 1. 55 1. 86 2. 28 2. 28 3. 04 4. 12 4. 16 6. 2. 26 3. 06 4. 22 2. 37 4. 12 4. 14 4. 70 2. 28 4. 12 4. 13 4. 12 2. 28 3. 06 4. 22 2. 37 4. 12 4. 13 4. 14 4. 16 4. 10 4. 10 4. 10 5.	-2.44 -1.68 -1.04 -2.70 -2.20 -1.39 -0.67 -1.41 -0.52 -1.31 -0.68 -2.06 -1.70 +0.31 -1.59 +0.35 -1.45 -1.45	0.60 0.62 0.62 0.50 0.50 0.50 0.61 0.78 0.48 0.63 1.56 1.36 0.82 0.66 1.30 0.50 1.06 0.50 0.50 1.06 0.50 1.06 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 10 9 9 6 6 7 12 5 12 6 6 9 12 13 13 14 10 10 7 7 11 11 12 10 11 11 11 12 11 11 11 11 11 11 11 11 11	8 9 5 15 8 12 7 7 13 15 9 9 7 11 11 14 14 15 7 7 13 22 14 13 11 11	3 5 19 12 5 9 6 7 4 4 0 10 11 15 1 1 16 0 0 3 3 7 6 6 12 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 17 7 4 18 10 18 11 15 21 3 15 19 11 8 	e.  s. nw. n. e. nw. ne. n. e. n. e. n.	R. H. Wood. F. C. Tibbs. B. J. Du Bose. A. N. Mayes. J. C. Little: Walter A. Hilton. R. T. Humber. U. S. Weather Bureau. E. C. Bryan. Prof. O. M. Cone. M. G. McComb. W. T. S. Dickey. J. C. Collins. Miss Maude Penn. Mrs. Ida J. Milner. W. O. Medlock. J. J. Flanders. C. M. Witcher. C. T. Merritt. Miss Mildred Collum. A. B. Jones. D. E. Humphreys. D. A. Norton. W. M. Towers. A. N. Lund. U. S. Weather Bureau W. C. Cromley. Dr. E. L. Bardwell. C. C. Sigman. U. S. Weather Bureau Miss Marian L. Craig. Miss Annie Twitty. Miss Ella B. Smith. Dr. J. F. Wilson. Mrs. H. W. Blount.
Vest Point Voodbury  Florida.  palachicola	. Meriwether	641	23 12 9	57.4	+1.2	80	17	32	9	28	3. 23 4. 02 5. 15	-2.00 -0.27	0.90 1.02	0	8	13 12 9	9 19	17 15	7.0. 8.	E. N. Dunn. E. T. Riggins.  A. F. Whiteside.
readia	Alachus De Soto. Polk. Osceola Manatee. Hernando. do. Franklin Levy. Lake. Putnam Walton Volusia Lake. Putnam St. Lucle. Nassau. Dade. Polk Lee. Alachus Walton Orange. Dade. Palm Beach Citrus Duval. Hamilton Bradford Monroe Osceola Columbia Dade. Polk Baker Madison Brevard Jackson Brevard Jackson Brevard Dade. do Clay Escambia Jefferson Gadsden Wakulla Volusia Orange.	92 150 150 115 150 115 150 115 150 115 150 150	20 1 23 40 12 17 1 15 4 3 17 13 43 42 20 20 28	59, 20 de. 4 de. 2 de. 62. 4 de. 2 de. 63. 1 de. 63. 1 de. 63. 1 de. 63. 6 de. 64. 64. 64. 64. 64. 64. 64. 64. 64. 64	+ 2.3 + 1.9 + 1.5 + 2.4 + 1.5 + 2.4 + 3.0 + 1.3 + 1.3 + 1.4 + 2.3 + 1.0 - 0.1 + 1.3 + 2.4 + 2.3 + 1.0 + 2.3 + 1.0 + 2.3 + 1.0 + 2.4 + 2.4 + 2.4 + 2.4 + 2.5 + 2.5	82 82 83 83 82 85 85 85 86 87 89 83 83 83 83 83 83 83 83 83 83 83 83 83	1 23 7 1 1 1 1 7 1 1 1 1	39 300 422 333 36 422 99 266 433 34 422 35 35 35 35 422 77 48 45 312 25 35 44 47 46 47 32 25 35 31 32 35 35 35 35 35 35 35 35 35 35 35 35 35	12 10 27 12 12 12 19 9 11 1 19 9 11 1 1 1 1 1 1	344 411 344 4132 26 266 426 430 30 30 333 37 27 27 30 33 266 36 31 36 34 39 27 38 39 39 37 37 37 37 37 37 37 37 37 37 37 37 37	3. 61 2. 75 5. 72 4. 33 5. 66 5. 20 5. 23 7. 3. 02 2. 48 2. 24 2. 24 2. 24 2. 23 7. 1. 04 3. 50 6. 70 1. 1. 04 3. 71 1. 50 6. 70 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	- 0.01 + 0.59 + 0.59 - 2.82 + 0.63 + 0.92 - 1.28 + 0.75 - 0.60 + 4.12 - 1.03 + 2.45 + 1.50 - 0.42 + 2.81 - 1.05 + 1.40 - 1.15 - 1.05 +	1. 04 2. 90 1. 25 2. 06 1. 25 2. 16 1. 25 2. 16 1. 25 2. 14 1. 20 0. 97 0. 97 0. 60 0. 60 0. 60 0. 50 2. 32 1. 40 0. 52 2. 48 1. 40 0. 52 2. 48 1. 40 0. 52 2. 48 1. 40 0. 52 1. 40 0. 52 1. 54 1. 54		11 8 7 7 7 13 6 6 6 11 8 8 6 9 9 9 8 7 7 6 5 5 8 5 12 6 10 5 5 6 2 2 7 8 8 11 1 5 5 7 7 7 7 8 10 7 7 7 7 8 10 7 7 7 8 9 8 8 4	13 9 11 15 12 16 16 10 10 10 10 10 10 11 11 11 12 13 13 13 13 13 13 13 13 13 13	15	9 14 8 8 8 13 15 13 3 13 19 9 4 11 10 10 20 2 6 6 1 15 15 15 15 15 15 15 15 15 15 15 15 1	n. nw. n. se. n.	C. S. Bushnell. R. B. Hodgson. William King. William King. William King. William Hood. L. N. Kilne. F. H. Braymer, M. D. C. C. Peck. William Gomme. J. J. Blomquist. S. T. White. S. S. Fesler. Walter Cliff. W. O. H. Shepard. Rev. W. J. Harkness. C. T. Smith. E. S. Hubbard. W. A. James. T. C. Borden. W. A. James. T. C. Borden. W. A. James. T. C. Roynne. T. C. Nicholson. John Schnabel. U. S. Forest Service. J. B. Escott. T. M. Griffin. B. A. Tibbits. J. A. Kahl. G. A. Angevine. W. H. Miller. U. S. Weather Bureau Mrs. W. C. Caldwell. A. M. C. Brasch. U. S. Weather Bureau J. A. Simpson. L. D. Niles. Griffing Bros. E. J. Vann. J. F. Farley. W. W. Brooks. F. Ulrich. U. S. Weather Bureau Edward Simmonds. G. A. Chalker. W. H. Trimmer. R. E. V. Cook. Miss Addie Grubb. Nathaniel Brewer, jr. F. J. Nordman. James Thomson. E. M. Goodson.

TABLE 1.—Climatological data for December, 1913. District No. 2—Continued.

A 10-10 A 10-10 W 10-1			rears.	Temp	perature	, in	degr	ees Fal	renl	heit.	Pre	eipitation	, in in		lays,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy d	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	pu	Observers.
Florida-Continued.																				
Pinellas Park Piant City Ritta. Rockwell. St. Augustine St. Cloud. St. Leo. Sand Key. Sanford. Satsuma Heights. Switzerland. Tallahassee. Tampa. Tarpon Springs. Titusville. Zona.	Hillsboro. Palm Beach. Marion. St. Johns. Osceola. Pasco. Monroe. Seminole. Putnam. St. Johns. Leon. Hillsboro. Pinellas. Brevard.		11 61 16 1 5 20 26 23 28 17	65. 4° 59. 0° 59. 6 63. 4 62. 2 71. 2 61. 2 58. 0 58. 9 55. 8 62. 4 60. 3	+ 1.4 + 0.5 + 2.2 + 3.0 + 3.9 + 3.2 + 2.9 + 0.7 + 1.6	83 80 84 80 79 84 82 77 82 79 85 83 82 84 82 84		36 35 51* 32* 36 35 62 38 30 34 30 38 34 38		33*	4.99 3.12 2.54 3.91 1.58 2.59 4.41 4.05 3.60 4.20 4.43	+ 1.77 + 2.81 + 0.58 + 1.28 + 1.24 - 1.04 + 2.18 + 2.21 + 0.79	2, 27 1, 78 0, 72 1, 71 1, 37 0, 75 1, 63 1, 21 1, 00 2, 37 1, 10 1, 60 1, 40 0, 43	000000000000000000000000000000000000000	8 8 9 8 6 7 9 6 9 8 8 8 9 9 12 8	9 14  28 13 15 4 10 12  9 9 14 10 13	7 17 2 8 7 24 10 10 10 7 11 6 9 16	15 0 10 9 3 11 9 15 11 11 12 2	nw. n. nw. nw. ne. ne. ne. ne. ne. ne. ne. ne. ne.	Miss E. Borgman. E. B. Trask. R. G. Hødley. Dunellon Phos. Co. E. F. Joyce. J. T. Bearss. Gerald Schneider. U. S. Weather Bureau. H. C. DuBose. Satsuma Co. Mrs. W. C. Steele. W. H. Markham. U. S. Weather Bureau. A. P. Albaugh, M. D. F. M. Taylor. C. M. Rubison.
Alaga Anniston Ashville Auburn Bay Minette Benton	Calhoun	105 728 685 732 268 149	8 22 20 31	43.6	+ 1.6 + 0.7 + 2.8	66 63 68	17 1 17	23 21 26	10 10 9	31 35 30	3.81	- 1.42 - 0.17 - 1.27 + 0.65	1.40 0.75 1.78 1.07 1.81 1.24	T. 0 0 0	6 13 8 12 7 8	6 11 8	11 7 4	19	nw.	Dr. Jas. T. Anderson. J. M. Franklin.
Bermuda Birmingham Calera Camp Hill Citronelle	Conecuh Jefferson Shelby Tallapooss Mobile	701 500 738 331	26 25 12 12 12 25	47. 2 47. 4 53. 1	+ 0.9 - 0.1 + 0.9	78 69 72 80	1 1 16 1	26 23 22 29	10 9	36* 28 39 37	2. 66 2. 99 3. 98 3. 25 2. 46	- 2.03 - 1.61 - 0.65 - 2.35 - 2.30	1. 02 0. 81 1. 20 1. 32 1. 22	T. 0 0 0	8 10 9 8 10	7 7 5 9	11 9 9 5	13 15	n. n.	M. J. Morris. U. S. Weather Bureau. L. G. Privett. Dr. Lyman Ward. Rev. W. H. Rowe.
Clanton	Pickens	590 100 334 802 780	20 3 22 5 8 22	48. 0 44. 6	+ 1.7 + 4.6 + 1.9	75 74 67 81	1 1 16	25 19 20 27	10 10 9	38 36 32	3. 39 2. 92 2. 71 3. 83 3. 57 1. 60	- 1.04 - 2.14 - 3.46	1.06 1.15 1.00 1.30 1.09 0.65	0.3 T. 0 T.	11 7 5 8 8	12 11 13	10	13 10	sw. n.	Joseph B. Downs. T. H. G. Cooke. Scott Maxwell. Eugene A. Grayott. W. B. Fulton. John H. Young.
Demopolis Eufaula Evergreen Flomaton Fort Deposit Gadsden Goodwater	Marengo		21 29 29 21 29 29 29 18	47. 0 52. 3 53. 8	- 0.6 + 3.0 + 2.7 + 2.4 - 1.5	72 84 73 73 68 60	1 1 4 1 1 1 1	19 25 26 25 21	10 10 9 9† 10	36 45 43	4.59 1.51 1.89 3.00 3.03 5.14	- 0.17 - 3.11 - 1.94 - 1.80 - 1.44 + 0.14 + 0.26	1. 14 0. 42 0. 74 1. 52 0. 95 1. 68 1. 23	0 0 0 0 0 0 T.	10 8 5 4 8 9	16	3	12	• • • • • • • •	George E. Pegram. Dr. J. B. Whitlock. George W. Salter. J. B. Semmes. J. F. Hattemer. D. P. Goodhue.
Greensboro	Hale	220 444 362	34 12 17 1 21 29	48.6 46.2 51.4 46.8	+ 0.2 + 2.5 + 2.4 + 0.6	72 74 78 73	1 1 1† 6	27 15 27 23	9 9 11	25 27 45 28 36	3. 59 3. 03 2. 92 4. 23 2. 40 3. 84	- 1.24 - 2.05 - 1.91 - 2.21 - 0.58	1. 15 1. 52 1. 10 1. 37 0. 73 1. 80	T. T. 0	7 4 10 7 10 4	10	6	14	n. nw.	W. E. W. Yerby. E. M. Lewis. Prof. H. O. Sargent. James E. Lipscomb. Prof. Samuel Jordan. Robert L. King.
Lock No. 4.  Maple Grove Mentone.  Milstead.  Mobile Montgomery  Newbern.	Cherokee De Kalb Macon Mobile Montgomery	1,595 84 240	16 20 6 10 41 41 21	53.8	+ 3.9 + 2.3 + 2.3 + 1.1 + 2.0 + 5.0	69 68 78 75 76	1 1 1 1	22 21 32 28 28 23	10 8† 9 9	33 33 26 31 36	3. 55 3. 44 5. 65 3. 40 2. 55 3. 17 3. 94	- 1. 15 - 1. 68 - 2. 02 - 1. 33 - 0. 43	0.80 0.90 2.12 1.09 0.92 1.39 1.15	T. 0	10 8 7 9 8 13 9	5 5 6 7	19	7	nw.	U. S. Engineers. Mrs. A. L. Awbrey. E. Mason. W. U. Wall. U. S. Weather Bureau. Do. Dr. J. Huggins.
OneontaOpelikaOzarkPrattvillePrushmatahaRobertsdale	Blount. Lee. Dale. Autauga Choctaw Baldwin	857 917 400 281	19 34 11 13 22 1	47. 4 48. 9 48. 8 48. 6	+ 1.0 - 1.8	70 68 73 75 73	1 1 1 1 5	20 24 28 24 24 25	10 9 9† 10 9	38 23 28 35° 35	1.05 3.72 5.76 1.48	- 0.64 - 1.54 + 1.01	1. 22 0. 82 0. 60 0. 82 2. 01 0. 56	T. 0 0 0 0	11 9 3 7 7 6	9 10 5	10 8	11 18	n. nw.	Aquilla J. Ketchum. A. H. Read, Jr. James A. Scott. Joseph B. Bell. W. N. Horn. Carl Boseck.
Selma. Spring Hill. Talladega Tallassee. Thomasville. Troy	Dallas	147 312 554 385 581	33 9 23 22 22 5	52.5 47.6	+ 2.2 + 2.6 + 0.4	77 78 68 73 81	1 1 1 1 1 1	25 29 21 26 26	9 9 10 9	36 28 <sup>b</sup> 31 29 30	3. 18 2. 53 2. 78 3. 22 4. 51	- 1.38 - 1.52 - 1.93 + 0.98	1. 25 1. 01 2. 00 0. 74 3. 40 0. 49	T. 0 0	9 5 7 4 8	14 15	8	11 8	n.	Charles F. Brislin. Spring Hill College. W. E. Henkel. P. A. Noble. Miss H. T. Forster. Frank L. Zimmermann.
Tuscaloosa. Tuskegee Union Springs. Uniontown. Valley Head. Wetumpka.	Tuscaloosa Macon Bullock Perry De Kaib	230 216 273 1,031 205	32 13 26 27 28 21	49. 8 49. 0 50. 0 45. 4	+ 0.2 + 1.9 + 1.7 + 1.2 + 4.1 + 3.3	74 76 71 78 69 79	1 1 1 1 2 1	25 24 26 25 19 25	9 10 9 9 9	36 31 29 37 38 45	3. 42 2. 60 2. 35 2. 94 4. 48	- 1.59 - 3.15 - 2.45 - 1.41 - 0.26 - 1.87	1. 19 1. 00 1. 06 0. 78 1. 70 0. 65	T. 0 0 T.	8 4 7 7 8	4 5	16 12 2	11 14 10	n.	W. S. Wyman, jr. Prof. George W. Carver. P. L. Cowan. L. H. Moore. M. T. Floyd, M. D. Mrs. Emmie Callaway.
Mississippi.																	and the second			
Aberdeen Agricultural College Bay St. Louis Biloxi. Booneville Brookhaven. Colline	Hancock	210 424 28 24 504 500	25 23 20 22 19 25	47. 3 55. 1 55. 1 44. 3 49. 2	+ 2.8 + 0.3 + 2.8 + 3.0 - 0.3 - 1.1	73 68 80 76 69 75	1† 2 1 1 1 2	23 25 32 32 20 27	9† 9 9 9 9†	38 32 29 27 30 35	3. 72 2. 66 2. 92 4. 92	- 2.05 - 0.80 - 2.50 - 2.17 - 0.09	0.84 1.20 0.85 1.25 0.76 2.09	T. 2.0 0 0 4.0	9 12 11 9 11	12 7 9 8 12 10	1 11 10 5 10 1	13 12 18 9 20	n. ne. se. n. e.	L. D. Godfrey, jr. J. R. Ricks. Brother Matthew. Miss M. Josle Pope. Dr. D. T. Price. W. J. Bee.
Collins Columbia Columbius Crystal Springs Ed inburg Enterprise Fulton	Covington	110 191 468 248	9 25 21 5 8 4	45. 8 48. 0	+ 0.2	74 72 76 73	1† 1 2 1	26 23 25 21	9 9† 9† 9	37 36 39	3. 88 3. 64 3. 07 3. 85 5. 09	- 1.44 - 2.46	1. 12 0. 96 1. 18 0. 72 0. 81 1. 72 0. 90	T. 0 T. 0 T. T.	7 10 9 .9 9 10 8	12 11 11 12 11 7	5 3 2 5 5 0	17 18 14 15 24	nw. nw. nw. n. nw.	G. P. Sledge. N. R. Drummond. J. B. Love. D. H. Miller. J. Y. Blocker. J. B. Thompson. A. D. Graham.
Hattiesburg	Forrest. Copiah. Newton Hinds. Scott.	189 460 326 280 446	20 23 3 26 25	50, 2 48, 8 49, 7 47, 9		76 75 78 72	5 1 2 5	25 26 25 28	9† 9 9	40 33 38 33	3. 70 3. 06 4. 27	- 0.82 - 2.16 - 1.56 - 1.25	1. 52 1. 11 1. 10 0. 70 0. 90	0 0 0	7 8 6 10 6	12 7 12 10 7	5 1 5	19 19 18 16	n. ne. n. ne. nw.	T. C. Spence. J. D. Granberry. T. N. McMullen. A. S. Nall. Mrs. Eddie McNeel.

Table 1.—Climatological data for December, 1013. District No. 2—Continued.

			years.	Temp	erature	, in	degre	es Fal	rent	neit.	Prec	cipitation	, in in	ches.	days,		Sky		direc-	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part-	Number of cloudy days.	Prevailing wind of tion.	Observers.
Mississippi—Contd. Laurel. Leakesville. Louisville. McNeill. Macon. Magnolia. Meridian. Merill. Monticello. Dkolona. Pascagoula. Pearlington. Porterville. Shubuta. Tupelo. Waynesboro.	Jones Greene Winston Pearl River Noxubee Pike Lauderdale George Lawrence Chickasaw Jackson Hancock Kemper Clarke Lee Wayne	241 561 230 185 415 375 76 209 311 15 10 197 278 191	9 19 24 10 25 17 23 8 6 25 4 25 8 8 14 26	50, 8 45, 4 54, 2 54, 0 48, 0	- 0.4 + 0.8 + 1.0 - 0.4 + 0.5 + 0.8 + 1.6 + 1.3	76 81 75 78 73 77 73 75 73 76 75 74	1 1 2 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	25 25 25 25 30 24 28 27 25 23 30 28 23 23 21 25	9 9† 9 9 9 9 10 9 9†	38 41 37 30 40 29 31 37 35 32 30 39	1.53 1.98 3.64 4.76 3.49	- 2.45 - 1.18 - 2.59 - 1.19 - 1.64 - 1.41 - 1.01 - 2.47	0.90 1.71 1.13 1.08 0.96 1.17 1.31 1.75 1.33 0.90 1.03 1.00 0.96 1.40 0.88 1.55	T. 0 T. 0 T. 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 5 5 7 9 10 8 4 11 7 8 10 8 10 8 4 11 7 8 10 8 10 8 10 8 10 8 10 8 10 8 10	7 10 11 4 9 10 12  8 8 8 12	7  1 5 6 1 8 1  14 5 3	20 15 21 21 13 18 18 16 22	ne.  nw. e. nw. ne. n. nw. n. nw. n.	Thomas W. Flynt. Dr. Sam Pool. B. T. Webster. Prof. E. B. Ferris, Finis E. Carleton. Miss Ruby V. Roberts U. S. Weather Bureau James E. Walters. Dr. G. A. Teunisson. E. J. Henson. MeVea Young. Miss Annette Koch. I. S. Rea. George A. Floyd. W. S. Vincent. R. S. Burke.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
 \*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
 † Also on other dates.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for December, 1913. District No. 2, South Atlantic and East Gulf States.

Canti	Watershad														1	oj (	of mo											(			1		-
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1
Virginia.																						-											
vonia	James	. 36	. 11					. 29															200		.07		. 18			T.			64 63
ichanan	do	. 58	. 48					. 32	. 15														1.	. 70	. 10	. 82	. 06			. 19			999
llaville	Chowan	. 61	0.0	1				. 17	****	****											.06	T.		. 47		.51	T.						
tawba	Roanoke	.90	O.S.	6			1	1 15						1										. 90	0000	. 90							1
arlottesville	James	. 08	20				1	16		1		8	1								1.				. UL	1, 10	81		****	21	.05		
arksville	Roanoke	T.	1.60						.48							• • • •								. 65	. 30	1.05	. (14						1
olumbia	Roanoke	. 59	71				****	19	17	****						****					T.	T.		. 14	. 63	. 11	. 59			. 14			1
anville   iamond Springs		. 50	.18					. 18														.07		****	. 51	****	. 76			. 14	.06		1
ry Bridge	James	. 40	. 16					. 38															19	.90		. 83	34					T.	1
ot Springs	do	40						24								****		• • • • •					. 1.0		. 12	1.02	. 08			. 21			1
orssiter	Chowan	. 29						1 . 66			Innon											****		. 24									1
xington	do	1 50						. 33																- 000		. 98	.06					Т.	1
nehburg		.72	. 03					. 29										****		****	03	01		26	.01	. 76	T		****	. 17	.03		
ewport News	Coast		. 14	T			****	. 23										••••			.03	T.		. 54		.71	T.			. 11		. 02	
orfolk			.04	1.			0000	. 2.4														. 10		. 60		2.01	. 10			. 20			
andolph]	Roanoke	. 13	. 82						. 35												m			. 30	. 55		. 80			. 13			
ichmond	James	. 42	. 02					. 27													1.	1.		. 39	.07	. 82							
oanoke		1.00	22			0000		2.00																. 51		.99				. 22			
ocky Mount	James	. 25	0.4		1		1	91		1	1		1									T. 1		, 30		. 82	. 31		****				
innymede (near).	. Chowan	. 48						.38													T.			1.00		. 87	20		. 12	13	.03	.04	
uart	Roanoke	. 63	T.					. 35	T.												.02									. 06			1
est Pointilliamsburg	James	10	40			0000		45																. 65	. 20	.90							
North Carolina.	FOLLOWS	. 10	. 10					. 10																									
bemarle	Pedee	1. 19						. 24							T.	. 05					. 20	. 02	. 02	. 93		. 62			T	. 44	.70		
tapass (near)	Santee	. 93	T.					. 68							T.				00		35	.04		. 16	.02	. 10	. 02		A .	. 56		1.	
eaufort	Coast Pungo	98	. 10					. 03	. 20										.00		. 00	.01		. 95	.75	.75				. 07		. 03	3
elhaven rewers roleen nalybeate Springs napel Hill. narlotte	Perlee	. 20	.02					. 43		1														. 51	. 02	. 82	. 13	3		. 26	3	.30	
roleen	Santee	1.94	.02					. 80								T.					60			. 70		. 96				10	.47	T.	
alybeate Springs	Cape Fear	. 41	. 39					. 21										T.			Т.	. 02		40		1.00	0.5		. 0.5	1.15	. 50	.05	
apel Hill	do	1.11	T.				70	16	T.	T.					T	01		T.		T.	.05	T.		1.03	.01	. 83			T.	1.05	. 34	T.	1
impor Rock	do	1. 34					1	- 20																1.50	. 10	.90				. 80	. 24		
rham (near)	Neuse	. 99	. 02					. 41														·		. 60	700	.82	10			1.13	T	T.	-
agletown	. Chowan	. 10	. 26					, 29									0000				T.	1.	1.	1.00	1.	1. 25	. 10	3		. 19		.10	
lenton	Pasquotank.							. 46																. 60	T.	. 83				. 15	5	T.	1
lizabeth City	Cane Fear		1.60					- ele														. 52				. 64							-
kinff	Cape Fear	1.05	. 83	3				.37								.03				****				.37	.06	. 10		3		1	08		
nfield (near)	. Tar																										. 58	8			2 1. 26		
yetteville			. 75	T.																						. 77	. 12	2		. 30	1.12		
lobe (near)		0.00	54						100		1								103			7	100	53	13	76	3.	5		. 12	2 . 43	. 18	
orge (near)		. 02						P 9					4		1	1 00							7588			. 84	. UE	5	. 18	90	2 . 14	. 10	
raham	. Cape Fear	. 23	1.33	3				. 06	.4	5											.04	.00		. 49	65	. 47	31	1					
reensboro	do		2 1. 70		2			01	.0	0											. 00	. 05	.03	. 36	. 08	. 68	. 67	2		. 10	0 .11	. 21	1
reenville								Ou	6			1									. 34			- 47	. 01	1, 24				- 65	5 .09	.07	
enderson								. 38	3												. 18	T.		. 39	T.	1, 43	3			. 18	8		-
	noke.		-		1		1	1	1		1	1	1			0/1								. 76		1, 28	2	1	1	. 46	0 . 18	3	
ickory	Santee	1. 78						5																70	1	Of	)			63	2 .70	T.	
ings Mountain inston		. 03	3 7	3				. 3	3												.07			. 43	. 01	1, 43	3 . 4	3		. 00	2 . 68	3 .00	
enoir	Santee	1.47	7					4	7							. 05								. 65		. 78	8 .0	8		1 9	3 . 18	3 .02 T.	
incolnton	do	1.34	4					. 4	3												7:			24	30	. 40	6.6	2		. 1	7 . 1	5	
ouisburg [	Tar Lumber		. B. Ut							0						01			T		rgp.	773	0.4	26	0.4	1 1 24	4 7	2		. 0	4 1. 6	2 . 6	2
umberton     anteo	Coast		. A. UI		4	1	0													. 04											0	. 0	6
arion	Coast Santee Cape Fear Pedee Santee Santee Tar	1. 2	3				5	8 .5	8													00		. 60	. 02	. 63	0 .0	7	0.	0	9 .1	.0.	*
oncure	. Cape Fear	. 0	7 . 70	6 .0	2			0	4 .1	5						0					.05	.00	0000	. 59	. 04	. 55	8 .0	6		70	0 1.0	8	
onroe	. Pedee	1.90	5 7				T	6	2			-				.04								. 76	3	. 92	2 .0	2	. T.	. 4	8 .2	1 T.	
organton	Santee	- 61	0 .9	0				1	6 .0	8											T.	0000	T.	1. 20	. 16	. 30	9.9	0		1.30	6 2. 9	5 .13	3
ashville	. Tar	00	3 . 7	5 .0	3		. T.	.0	4 . 1	6						T.		- 0 0 0				T.	. 10	.90	1 . 15	1.00	7 7	2	· . L	0	8 .4	5 .0	9
euse [	- 740HW0	. 00	8 .9	0 .1	0			00	3 .2	0									.02	0000	.07	.00		32		1. 20	0 .4	2		1	2 .4	7 .0	3
ewhern	Podo	2.00	0 . 1					1	5 . 2										. 04					.72	2	. 97	7			2	6 .1	0 .10	0
orth Wilkesboro (near).	1 00000	. a. U						1			1	1		1	1			1						(TE)			1						
arkersburg	. Cape Fear	1	5 1. 4	5			2	0													40		. 80	1 30	1.60	71	0		1	01.8	0 .1	. 1	13
inehurst	. Lumber		7	4												T		· db			. 40	T		1 00	T	1.2	4 .0	1	. T.	. 1	9 .3	6 .0	6
aleighamseur	. Caps Fear	. 0	5 0	4			. 1.	3	1															. 93	. 04	1 .50	0			0	4 .5	0 T.	.
andleman II																															rate . U		0
eidsville [[	do	3	4 1. 2	ő				2	0 .1	0								FED		T.			P.	. 33	7 4	1 1	4 .6	N	T	1 4	$\frac{2}{5} \cdot 0$	4 0	15
ock House	. Savannah	. 1.0	0				1	0 1. 0	9						- 10			T.		1.		29	1.	. 11		1.7	0			1.8	5		
ockingham	Pedee	. 1.5	0	0				1	ð															.40	5 . 12	5 .3	0 .2	0		4	0 .2	5 . 1	U
ocky Mount			1.0	6 0	1			4	3 T															. 54	4 .44	4 .3	8 .6	9		1	8		
ougemont   [	. Pedee	. 9	5 .9	0																				. 40		1.4	5 . 9	5		3	0 .5		
axon	. Roanoke	. 1.7	0					4	6												Tr.	****	****	. 80	6 0	7 6	8		* * * *	1 1	6	1	*
cotland Neck	- Tar	0	7 .9	3				2	5											****	1.	****		4!	5 .0	8	6 .0	4	1	3	5 .2		
ettle	. Pedse Cape Fear	. 2.0	9				T	4	0						. 4.			T.		. 15		T		. 45	) T.	1. 7	4			1	7 1.0	0 .1	12
loan mithfield []	. Cape rear	0	0				4 4	. 0	0											1		1	06	46	0 14	D 48	0 8	7		1	0 .4	4 .0	19
outhern Pines	Neuse	7	5 .1	5			3	0											. 00			. 0			. 50	31.5	U			1	1.7	0 7	-
outhport	do		7.	5				3	0							T.		. 0			. 56			00	0	0 1. 0	6			1 . 5	60 .4	4 .0	ñ
tatesville	Pedee	. 2, 4	4	-				3	8	2												00	T	. 91	0 .4	5 .6	2 .4	10		0	3 .1	9	
arboro [	Pedee	0	2 .5	6 .6	1.6			1 /5	0 .3						T	1000								. 5	0	5	0 T		. T	5	0 . 1	0 T	. 1
ryon (near)	Roanoka	T	6	4 T				0	1 .2	7													T.	. 1	8 .5	5 T.	8	\$5		1	0.0	2 T	
/eldon	Cape Fear		7	3			2	8													. 2	5		. 4	5	. 1.5	6			1	15 1. 3	2	, .

TABLE 2 .- Daily precipitation for December, 1913. District No. 2-Continued.

Stations	Watershed.	-		4	1					1		1	1	1	1		of mo					-			1					1		
Stations	***************************************	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
South Carolina.																					1-											
iken	Edisto	. 25	****													. 10				. 10				.40		. 68		• • • •	1. 10		. 60	T.
	Savannahdo	1. 14	. 25					1. 11					****		.06	. 10			. 05			.07		. 57		. 96				1.96	.78	
atesburg	Edisto		1.02					.72	. 49							. 32					. 12	. 21	. 58	. 64	. 12	. 79				. 41	. 54	
eaufort	Coast		. 35					T.						• • • •			. 18					****	05	95	1.50	55	05			. 15	. 70	
lackville	Edisto Broad		.03				• • • •	27	****	• • • •	••••	****	• • • •		****	.09		****	.09	.02	.08		. 20	.70		. 00	.70	****			2.70	
	VA-SInda	9.8	PES	T.				. 54										. 10	. 15					. 16		1.08					. 30	
roxton	Salk'hatc'ie. Savannah Wateree Catawba		. 10					. 22	. 10										. 12	. 20			700	. 05		. 00	***				. 40 2. 25	
alhoun Falls []	Savannah	1.02	. 12				. 30	. 04	14	• • • • •	****			• • • •	••••	. 20	****					. 04	.07	. 40	.09	. 44	. 57				1. 20	
amden	Catawba	. 18	. 84					. 30	.02							.08					. 10		. 04	. 84	. 26	. 50	.39			. 26	1.52	. 03
happells	Saluda	. 23	. 01					. 16														. 23	. 18 T	. 00		.31	. 63			. 62	2.42	70
harleston	Pedee	.41	. 01	T.				. 13	19						T	.01		T.	.01		.02		. 26	48	. 31	. 49	30		1.	.07	1.76	.04
heraw    emson College	Savannah							.70							T			T.								.12				2.01	T	
olumbia	Congaree	.51					T.	. 22							T.	. 02		T.	T.	.01		. 11	. 03	. 29	T.	. 52			T.	. 98		. 03
onway	Waccamaw . Pedee	T.	. 95	. 05					.05							. 16										. 97	.72		****	17	. 68 1. 20	.07
arlington	Little Pedee.	.50	. 21	. 03		****	T.	. 31			****					. 06		T.	T.		T.	.03		. 29		1. 20	.03				1. 26	. 03
dgefield	Savannah							. 49														. 20		****		. 45					1.01	
disto	Edisto		. 04					.07	. 40							.04		7	. 19	70			. 12	T.	m.	. 95					1.26	
erguson	Lynches Santee		52	01				.02	. 11	als s s	****		****			.00		Т.	. 15	.81				.02		1. 13	.02			T.	. 30	. 00
lorence II	Pedee		. 52					.12	. 28							. 05								. 46		. 70	. 15				1.00	
	Broad	1 21			1			26	0.3	T.						. 03			T.				T.	. 64	. 03	. 44	. 54				1.40	
eorgetown	Coast Saluda	T.	25	****	****			00	****	****	****	****	****	****		.00		1.	T	****		****		.52	1. 52	. 25	.82				1.32	
reenwood	do	.47	. 90					. 27												. 19				. 59		. 26				.90	2.00	
eath Springs	Wateree	1.08						. 40														. 37		. 58							1.90	
ingstree   ibertv	Black Savannah	1 98	1.00		****		T	90							.02	••••		T	T	T.		.02	T.	1. 10	T		.38		****		. 66	
ittle Mountain	Saluda	. 55						. 33					****		1	0.5			1	- 1		20	40	53		40				65	1 00	
eriwether	Savannah	. 54						. 41							.06				. 15	T.		. 25		. 30		. 56			0000	. 56	. 50	.02
onetta	Edisto	. 46	T.					. 31								. 10		. 02			. 02	. 29	.02	. 40	.01	1 40				1.40	1 67	T
olsor II	Saludado	96	59	1				74	04						1.	. 08	****	1.			.01	. 20	T.	.50	. 04	. 30	. 76			. 44	1.60	
nonolis	Cooper		10				1	30							i	- 143		7 7 1 1								1. 127				- AU	. 00	
. Matthews	Santee		. 20					. 20							10	. 13			. 15	. 26		95	. 10	. 21		. 65	. 04			. 15	.95	.05
duda	Broad	1 14						30							. 10	.07					.00	. 07		. 90		1. 24		****		1. 25	.91	. 01
																																. 10
ciety Hill	do	1.25					. 10	. 15							.05								. 88		. 80	. 20			. 25	1.35	1116	. 05
partanburg	Pedeedo Broad Ashley Edgefield	1. 10	. 41					. 60							05	. 05		T.	T.				T.	1.63	100	1.50	.07			T T	. 59	
mmerville	Edgefield	46	. 13	.05				. 38	****	****		****		T.	.00	****		T.	4.	T.		. 35		. 15	. 25	. 75				. 56		
innsboro	Broad	. 25	. 40			0 0 0 0								***	0.001	***	0000		0000													
inthrop College	Catawba	1.20				• • • •		. 33							****							. 00		1.00	T	1, 20	06				1.00	
emassee	Combahee		. 03	1.	****		****	1.	. 20	****	****	****		****					. 20	1.	****			. 20	-	1.00	1.00					
Georgia.																											1 - 8		1	1		
t transfile 11	Oamusluss	00	90		ı			. 98								02	. 15	T	.06				T.	09		. 49	.02			.14	.30	
bbeville	Ocmulgee Coosa	1.12					T.								.15											. 42			T.	1.35		.12
lbany [[	Flint	T.	T.					. 60								. 70	. 20						T.		. 03		. 15			.05		
liapaha	Allapaha																. 22					.03	T.	.07	. 02					. 03		
	Chatta'chee.	.47	T		***	****	.50															.18	.03	.16	.05					1.29		
ngusta	Savannah	.00					T.	. 25							. 02	. 05		T.	.01 T.	T.		. 02	.17	. 23		. 43				1.02		
ainbridge II	Flint		.01														.17		T.											.06	T.	T.
	Savannah	.24	. 21					. 45								. 20			.14		T			.30	.04				1	. 47	72	
		1.02	. 20					. 35							T.	. 21								. 35	T.	. 33	T.			. 93		
riton	Savannah	.48	. 30					. 48			·													. 45	. 15	. 43	.39		- 70		1.33	
ayton	do	1.12	1.08				1.25							. 10		21			.10					. 90		. 55	T	. 02	T.	. 25	. 18	T.
	Chatta'chee. Flint	.70	. 18				T.								. 26			.06				. 03								11.40	M	.04
	Ocmulgee	. 75						. 95																.50			. 65	. 18		. 78	. 15	
ahlonega	Chatta'chee.	1.11	.01				T.	. 92							. 06	. 23			. 01				05	. 66	0.4	. 66	12		. 01	. 86	46	.36
	Oconee Ocmulgee						. 73									T.							.00		.01	.36	.11				. 44	
	Oconee	.23													3							.18		. 18		1.10	N			1.30	. 30	
lberton	Savannah	. 90						. 45							T.	. 08			T.			T.		. 70	T.	. 95	5				1.30	
	Ocmulgee							. 60							.14							. 20	. 20	15	T.	60	)			T.	.06	
ort Gaines	Chatta'chee.	.80						. 66														. 18		.34		.10	.56			. 61		
illsville [ ]	Savannah	1.00						. 98											. 18			. 20			. 20	.30	. 28				1.20	
lennville	Altamaha	T.	. 20	T.			40	.17	.04				****	****	15	T.	T.	****	.05	****				.03	T.		. 03		.07	.02		
ore	Coosa Oconee	1.71					.18	. 48							.15	. 10						.42			. 02				.04		. 88	T.
	Ocmulgee							.78								. 19								. 52		. 53				. 46	. 73	
arrison	Ogeechee							. 55							?				. 35						. 18	. 50			0.00	.00		
artwell	Savannah																									0.4	.05		2.00			
	Ocmulgee Chatta'chee.							62			****					. 35			.10	****			T.	.17	T.	.05	5			. 20	45	. 05
	Savannah							. 15		****					.01					T.		. 22		.30		. 66	5			1.00	.30	. 05
ost Mountain	Chatta'chee.	1.21					.06	.30							T.	. 25		T.	. 05					. 37								. 40
ouisville	Ogeechee																	.05						. 12		27	5 .50				3 .40	
	Ocmulgee Chatta'chee.	.15										1			.18				. 15				. 22			.50	3			.36	5	
acon	Ocmulgee	.21						. 20		****					40			.04				. 05	.12	.10	. 29	.32	2	1				. 12
arshallville [[]	Flint	T.	.30					. 46								T.							T.	T.		1 . 78	8			T.	. 67	.07
illedgeville [[	Oconee	.16	.20					. 26			****							.03		****	1	.08		. 16			2 .30				30	
illen	Ogeechee Tennessee	T.	T.												.05			. 20							. 01	1.8	2			. 0	7	1.00
ontezuma	Flint		. 25			10000		. 52								.00	3							12	2	.60	3 .17	7		0	6 .30	.02
	Ocmulgee	. 37	.17					. 64								. 09							.14	. 20			0 .07			. 6		1 .10
onticeno [[		11 20															)		****					1.11	)	1 . 0			1000			2 .16
wnan II	Chatta chee.	2.00						190	1	1	1	1			1	- 635		1	\$1900	1	1	3.0	V.	34	S O	. 31	2 . 45	8		. 10	2 . 8	
wnan II	Savannah	.80																	. 02			. 14		. 60	)	. 8	2 .48			2.1		

# TABLE 2.—Daily precipitation for December, 1913. District No. 2—Continued.

Stations.	Watershed.	_		_	_										]	Day	of mo	nth.														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
orgia—Continued.																																
uitman	Suwanee								62															94		50	90				20	
mhurst	Coosa	1.05	5				.17	.76	. 02						.06		****	****			****	****		.30		. 40	. 80		.05	1.00	.30	.35
saca	do	. 1.50	)					.43									. 28							. 63		.28				1.02	T.	T.
George II	St. Marys	20	1	1	1	1	48	.30						T.	T.	.30			.07				97	1 28	. 05		.04			. 80	. 30	. 02
vannah	Savannah	52	T.	T.				.05							T.	T.		T.	. 07		. 01		. 04	. 13	.37	1.09				.04	.05	T.
atesboro	Ogeechee Chatta'chee.	T.						.17							T.	.04		.12	T.				T.	. 09	.50	.35				T.	.17	T.
llapoosa []	Tallapoosa							. 53											.08	.03		T	.10	.17						1.00		. 03
nomasville	Ocklocknee .		T.					.57							.47	. 28				.01			.17	.02	. 41	. 20				.33		.13
dosta	Savannah Suwanee	1.02	. 05					1.30								. 24						. 02		. 70	.10	.37	. 60			. 44	.72	
ashington II	Savannah	. 58	. 23				1::::	. 22								.15	. 30					16	12	. 25	T.	.52	.54			45	T. 1.53	
aycross	Satilla								.27								.04		.01		.06			. 28	.10	1.16		.01			.16	
aynesboro	Savannah Chatta'chee.						1	.18			1		1						. 03				T.	.12		.08	. 32				.79	
oodbury	Flint	.04						. 65														.10		. 15		.48				1.00	. 33	
Florida.														1		100							.10	- 200			. 30			1.02	.00	****
alachicola	Coast							. 83								1.04				. 02	. 26		. 13		1.45	1.12				. 30		
cadia	Peace Creek. Waccasassa.							. 65										.01			.14	.08	. 02	.14	. 11	1.04		1		30	. 10	
on Park	Kissimmee							. 19													.33	.03	. 22 T	15	2.90	1.05	****			.10	. 02	
rtow [ ]	Peace Creek.								. 18								ne				. 20	. 04	****	. 04		1.34	. 03			. 90	1.04	
ssenger	Kissimmee Manatee							T.								PED.	T. T.	T.			. 33	.12	20	. 20		1.25					. 85	
ooksville (1)	Withlac'chee							. 35									. 260				. 51				60	1.66	30			1.20		
ooksville (2)	do		T.	T.				. 18								.03	. 58			. 02	1.32	.07	.08	. 35	. 30	1.75	. 01			. 95	.02	
rabellelar Keys	Coastdo															2.14			. 11		9.0		. 32		1.24	1.03				. 36		
mont	Lake							. 10				1				.32					- 75	.10	. 28		1.00	.85						
scent City Funiak Sp'gs   .	St. Johns		. 02					. 23													. 56		. 05	. 13	. 92	.71				.02		. 05
r muar ob ga 11.	hatchee	19	1					12			1					07								. 13	. 31	. 63				100	04	
Land	St. Johns							.02								. 06	.70				. 45									. 10	.04	
tis	Lake								. 09							. 80				. 32	. 23		. 12	.06		1.11	. 12			. 10		
leral Point	St. Johns Sebastian				07		. 01	.11									. 17				. 56	.10	. 12	. 08	1.60	.72				T.	87	T.
nandina	Coast			. 03				.36	. 400									.07													. 67	
t Lauderdale     t Meade	Peace Creek.								T.						. 04	.06						T.	. 05				. 38				. 50	
t Myers	Caloosa-							T.								T.					. 25		.75	. 18	. 85					1.04		
	hatchee							. 12	. 01												. 01	.74		. 14	T.	. 66				. 65	. 14	
t Pierce	Indian								. 02															.31	. 44						. 50	
niers (near)	Coast	T.	T.				.00	. 16	. 50							1.60	. 44		.01		. 32		.14			2.32					. 14	. 04
smere	Lake							. 07								. 60	. 40			. 07	. 52	T.	.04	.13	.09	. 61				.50		. 01
linliard	New Nassau			. 15																	. 13			. 14		. 33						
nestead	Coast	. 08						.04																		. 52						
poluxo	Lake	.05							. 14							.12					. 16	. 04				. 29					. 31	
erness []	Withlac'chee St. Johns		01					. 32										700		. 50	. 23		. 36	.75	1.95					. 33	. 15	
oer	Suwanee	.00	.01	I.				. 76									. 06	T.	T.	. 08			. 20			1.23				.05	. 15	
nstown	do							. 47								.85		.11	. 27					2.51	1.45					.08		
West	Kissimmee,							.34								. 02					. 05	. 01	CES.		T.	.13					T.	
e City	Suwanee			.08				1.05								. 54	. 45	T			. 78	T.	T.	. 50	.05	1 61					.10	
k No. 1	North New-						1							-	-								. 20		. 50			****		. 4.3	.00	1.
erne Park	river Canal. Peace Creek.		. 05					22							. 12						T.			.06	FFS.	. 25				. 44		
clenny	St. Marys			1				. 95								.60				. 20	. 30		. 12							. 15	. 60	
ison []	Suwanee							.77								. 18					. 11	T.		. 11	. 09	1.45		. 22			. 20	T.
abarianna []	Indian				. 14			.06								1 00	1. 10	. 01						1. 15								
ritts Island	Indian			T.				.04								1.20	95				.86		.01	1.19	. 21	. 73				10	. 10	
mi (1)	Coast							T.						. 02	.02						. 04	T.				. 24				T.		T.
mi (2)dleburg	A palachicola Indian Coastdo St. Johns Escambia		1		T.				67					T.	.04		66				. 02	. 01	T.		1 75	1.28					T.	
no	Escambia								. 07						2.35		.00				.0%		. 35		.72	1.00		****			. 12	
ticello	A ucilla. A palachicola St. Marks. Coast. St. Johns. Coast. do. do. Hillsboro.						. 59								. 45	. 29				. 50			. 40	. 08	1.03	. 32			. 08	.14		
nt Pleasant	St. Marks.							- 25					0 - 0 -			1. 15	. 90			23			. 05	16	. 40	1.04				. 20		
Smyrna II	Coast			.06	. 03											4.00	. 13	.07			. 25	. 25	.00	.10		. 55	.08			. 21		
ndo	St. Johns	T.	T.					.25								T.	1.08				. 38		. 10	. 34	.36	.80				.18		
ama City	Coastdo	07	T				70	00							***	2.00							. 10	m	1.70	m						
llas Park	do							.57							- 11	. 05					.38		. 18	2.27	. 28	1.29			. 29	.50	.06	T.
t City	Calana	1	1					1		1		1000		1			. 18				. 37		. 10	1.08	.07	1.78					. 08	
8	hatchee.								03													70	41	05	10	44	02					
kwell	Withlac'chee							. 51								. 20	. 14				. 64	.72	. 05		1.54	1.71		1			.04	
Augustine	Coast	10000			lana.			. 10									. 30				. 50		. 15		1.371	. 701						
loud	B.Issimmee.			- 35	N		1	. 14						3			25				. 45			. 40		.75					. 40	
l Kev	Withlac'chee Coast	T.						T.	****					T		.18	1.03	****		1.	.09	.11	. 03	. 04	. 04	. 12		****		T 49	. 02 T.	0.5
ord !!	St. Johnsdo			. 02				.09								. 62				. 28	. 14		. 34		1.00	. 07				.03		
uma Heights tzerland	do		T.					. 11								. 24			.07		. 50		. 15		2.37	. 92					. 05	T.
ahassee [ ]	Ocklocknee .							11.30		1						1.00	.05			. 40	T		. 16	10	05	2.00				.09	. 40	
npa	Coast							. 42								T				16	. 14	. 07	1 45	1.5	12	1 24		1		45	. 10	****
pon Springs	Indian							. 52								T.	. 07				. 60	. 02	. 20	1.03	30	1.40				20		
<b>a</b>	New	.04		. 03	.04			. 22							****	. 08	. 70				1. 10		. 08	. 44	. 02	. 41				. 11	. 04	
Alabama.																															- 20	
ga !]	Chat'ho'chee							. 62	T.							1.40	.16							. 10	. 46	.52					т	T
ville	Coosa	57					. 45							T.	. 22	.01		. 02	T.	. 01			.32	.25	. 19	. 20			. 21	.58		.09
	do	17 7E					20	6.4							10								200	100.00								

Table 2 .- Daily precipitation for December, 1913. District No. 2-Continued.

															1	Day	of m	onth.														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
llabama-Contd.																																
y Minette	Coast						.34								1.81							20	.42			1.00	.94			.06		.44
nton	Alabama	.32						. 82					****		.84		****		****			. 03	.10	. 19	T.	1.02	.02	****	T.	10	1220	
rmuda	Escambia	T.					. 40		****				****	.04			1000	T.	T.				.52	. 19	. 16	. 20	T.		. 67	.11		.01
mingham	Bl'k Warrior Coosa						.03		****															.70		.50	. 55			1.20		. 05
era []np Hill	Tallapoosa						. 22							. 49				0300					. 10	. 22	.50	1 20		1.32	08	. 15		
ronelle	Alabama						. 13	.32							.42	.02					.01	. 15	.08	39			.03		.00	1.06	. 03	.08
nton		. 19					. 02	. 20			****				.50	. 04							1	. 15		.70			T.	. 25		
chrane	Tombigbee Bl'k Warrior	****					. 40	. 10	****		****				.41								.40 -		1.00					****		
rdovallman	do						1.30								. 53				. 10				.32	. 53		. 53			. 32	. 20 1. 09	25	T.
deville	Tallapoosa	. 45						. 48							.30	. 10						. 21	.55			. 45	****		T.			
phnemopolis	Coast			****			. 65	T.		****				****	.20	. 25								4 4		.87			.30	1.14		. 07
mopolis	Tombigbee Chat'ho'chee	24	.00				T.	. 12		****		****				. 22			T.							. 42					. 26	
faulaergreen	Escambia							.06								.70		~~~						. 27	40	.74			****	.86	.12	
omaton [[							T.									1.52			Th					.23	. 20	85		2-22		.25	.10	T.
rt Deposit	do							. 25			****					. 44		****	**					. 85		. 43				.74	.04	.06
dsden	Coosado	1.08			****			.75							. 45	.03						. 27		. 29		. 55	. 05			1.23	. 13	. 10
odwater	Bl'k Warrior						. 27								.56										.77	. 02 1. 02			1. 15		. 05	
eenville	Escambia																1.10	.05	04					.56	1.10				.38			
milton	Tombigbee						. 45	****	.17				****	. 26	07	1.23		.00						: 45		1.37				.92		
aling Springs	Escambia	****						.38								. 15							.08	. 14		. 64				1.14	.01	.03
ighland Home	Tombigbee						.26																.20			.74		****		1.04		
ck No. 4	Coosa	. 80						. 05						(T)				.09					.73	. 90	.39	.10		T.	.90	T.	.10	
ple Grove	do	T. 2.12	****	****	****	T.	.72	1.30				****		T.				.09	T.						T.	. 83	. 15			. 95		.12
entone	Tallapoosa	25	****				1.	. 32								.52						.40		. 20		. 42			****		. 12	
Istead	Coast	.00					. 18							T.	. 75	.01							. 54	08	. 90	.02		****	1.16			.01
ontgomery	Alabama	. 22						. 01							.40	T.		T.			.01	. 10	. 60	.00	.82					.01		
wbern	Bl'k Warrior	.30					.37									. 05								. 63		. 46	.11					. 53
neonta	Tallapoosa	24	T				. 14	. 42								. 59						.36				. 47					. 27	.07
oelika [[	Coast	. 43														. 60						.43	70	. 20		. 25			47	. 65	0000	
attville	Alabama	. 15					. 64								.56							. 43	.80	1 00	. 82				2.01	. 00		. 18
shmataha	Tombigbee						.31									.02							. 53	T.	.56					.24		T.
obertsdale	Coast	****				****		. 17							.06	. 33						T.	. 53	.32		. 94				1.20	.05	.07
ringhill [[	Coast	.03					.11	T.																		1.00		****	2.00	.38		.10
alladega	Coosa				T.	T.	. 30								. 28											.40			2.00		.19	. 03
allassee [ ]	Tallapoosa															81														3.40		
homasville	Tombigbee		.02				. 12		****						. 49								. 25			. 45			. 02		· · · · ·	
royuscaloosa	Bl'k Warrior							. 42												T.				1. 19			.11		1.00			
uskegee	Tallapoosa	T.																						. 11		.38			1.00		. 19	. 10
nion Springs	do						. 36								71	1.00			1.				. 60			.78			.07	. 40		
niontown	Bl'k Warrior Coosa	1.70					. 97	.37							. 40				.07					. 25		.57			. 15		T.	****
alley Head etumpka	do							. 40								. 63	3					. 07		. 18		. 52				. 60	. 19	0000
						1				1		1	1										1					1				
Mississippi.			1																									1				
berdeen	Tombigbee	T	1	1			, 20	. 19							45	. 16	3							. 80		. 78	.06		. 25			
gricultural College	do			****	. 04		.40							.0	1 .55			.05	. 10				.26	.40	.27	1.20	.01		.60		T.	T.
ay St. Louis	Coast						.33	.09							. 17	.01		.05	13					. 42	.60				.27			T.
ooneville	Tombigbee	. 04					. 25	****							1. 43	. 66	T.							1.22		.51	.01		. 25			. 02
rookhaven	Pearl	-					. 44								95											1.06			1. 12			.02
olumbia []	Pearl			****			.06								26		3		T.		. 03			. 07		.90			T.			.01
olumbus [ ]	Tombigbee														32			****	1.				****			.72			.52			
rystal Springs	Pearl						. 62	04							70	. 10	)	T.						.78		.80	.10		.81	.16		
dinburg	Chickasaw-	00	R	****		****	.04	.10							57	. 4	5							1.72		.72			- 63	.70	****	.08
nterprise	hav.																	. 08	10				30	50		on			47			
ulton	Tombigbee						.30								De	3	4	1	1					- 50	И	11 16	36	3	. 18	. 48		
attiesburg   azlehurst	Leaf										***			1	1.11	1	1 .08							. 28		. 65	.00		. 78	. 03		
azienurst	Pearl Chickasaw -														78	3							. 75	. 27		1.10			1.00	5		
ickory	hay.							1							- 40			-					70		94	25			45	2 .04	1	2 -
ckson	Pearl				T.									0	0 .42	.00		. 07					. 10	.80	.01	.90			. 7	3		
ake	do													T	30	T							.90	T.	. 20	. 88			. 90	0 .10	T.	. 06
aurel	Leaf Chickasaw -						. 20	41							08	8 .5	5									1.71			T.	. 22		
eakesville	hav.								1	1	1					1		1			1				1				0	2		1
ouisville	Pearl						. 26								70						10		.01	.02		1.06	3		3	0		
cNeill	do														72	0 1	0		T		. 40		. 20	. 67		. 86	T.		3	2 .24		
acon	Tombigbee	.0	1											. 0	70 60 1 1.13	7	0	3					.50		1.17	.01			8	4 .04	. 01	T.
agnolia	Pearl Chickasaw -		T		T	T								0	1 .6	1		T.					1.31		. 60	.07			. 1.0	0 T.		.0.
eridian	hav.		1		1		. 40	1	1	1	1	1	1		1	1 .		1	1		1	T	1			1 71	5		1			
errill	Pascagoula	.0	1												4 1.3	2 T	9	03	3		1		. 55	. 23	. 0	5 . 7	II T.		. 1.0	8 .2	T.	1.2
onticello	Pearl						.37																									
kolona	Tombigbee.																					Incan	. 96			1.00	3					
ascagoulaearlington	Pearl														1 0	C	1		1	1	1 1	1	301		1	-11-18	Pinne.		-1 -9	1 .0		
orterville	Tombigbee.	. 0	5				.23	3							2	8 T							. 46	1 0	8	1.8	4		1 1	2 1. 2	8	
hubuta	Chickasaw -	. 1	0				.00	3 .2	3						2	0 .4			-						1	1	1	1			1	1
	hay.						1	9							7	9		06	6 .2				. 25	.7	0	8	8			6		
upelo	. Tombigbee. Chickasaw -								5													0	5	1.7	0	. 1.2	0		- T	. 1.5	9	0
aynesboro !	CDICKREEW -	4 11															-				1	1										

<sup>Precipitation included in that of the next measurement.
Separate dates of falls not recorded.
Precipitation for the 24 hours ending on the morning when it is measured,
Precipitation is less than 0.01 inch rain or melted snow.</sup> 

TABLE 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 2, South Atlantic and East Gulf States.

					Virg	inia.											No	orth C	Carolina	a.								
ate.	Calla	ville.	H	ot ngs.	Lynel	burg.	Norf	olk.	Richn	nond.	Charl	lotte.	Eden	ton.	Faye		Hatte	ras.	Ne		Rale	lgh.	Reids	ville.	Salish	oury.	Wilm	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	50 57 64 63 71	41 45 46 32 34	43 48 52 52 52 53	40 41 43 38 35	45 58 64 66 70	43 43 48 42 47	51 52 58 59 68	48 49 48 45 43	49 52 64 62 68	43 46 44 38 41	47 55 60 62 67	45 44 48 46 43	55 56 60 65 60	45 48 48 49 49	53 59 59 67 74	46 43 48 43 40	58 62 59 57 59	53 53 52 49 51	68 56 66 70 77	47 52 50 44 40	48 54 60 64 68	45 46 48 47 46	46 52 61 62 64	43 42 43 45 40	55 54 53 64 71	44 45 45 39 36	61 56 59 63 69	49 51 50 45 45
) 7 3 )	66 60 57 46 51	33 47 25 17 19	55 51 46 29 47	33 44 16 15 18	64 59 36 45 47	43 36 23 28 26	57 65 47 43 50	48 47 28 30 29	60 60 40 44 50	40 40 26 23 24	61 60 39 44 51	47 37 26 23 27	65 65 57 43 50	48 40 30 23 23	69 64 57 46 55	43 54 29 23 22	62 66 55 46 51	51 53 37 34 38	73 71 46 52 61	43 52 33 27 23	62 60 41 43 52	47 41 27 25 27	61 59 53 41 50	41 49 22 23 22	61 65 61 45 43	35 36 24 21 21	72 69 55 44 53	51 54 33 27 28
 2 3	56 55 66 61 56	24 17 32 28 31	34 44 46 47 46	28 22 37 28 32	52 63 66 63 56	37 30 35 29 34	45 53 65 58 50	33 27 37 40 40	45 57 65 60 52	27 24 30 29 31	51 52 60 60 58	36 28 34 35 44	49 48 57 60 55	32 21 32 32 46	53 54 65 63 63	33 25 30 33 42	51 49 55 59 55	36 35 41 44 46	56 63 71 86	31 25 30 31 43	48 53 64 61 57	34 29 35 38 42	49 59 68 65 56	29 26 31 33 41	53 55 64 66 62	33 21 24 34 30	53 55 64 66 60	34 32 34 38 43
3 3 9	60 62 61 47 48	20 34 35 17 20	48 49 46 36 46	29 32 27 18 24	62 65 61 46 51	29 37 37 25 27	58 59 55 41 51	36 45 35 35 36	62 61 58 43 44	28 36 34 25 26	61 60 61 44 55	35 42 41 31 36	54 56 58 46 54	27 37 35 25 30	60 63 65 51 52	30 38 40 29 37	59 58 59 48 61	45 45 45 40 46	65 70 56 56	33 39 42 32 40	60 64 60 46 49	33 43 40 30 36	65 61 53 47 53	30 38 27 30 33	63 63 63 64 62	30 38 37 37 35	65 57 64 50 57	37 43 44 34 44
3 3 5	53 53 58 50 40	37 28 37 35 35	46 44 41 43 41	32 32 33 32 34	56 53 47 45 41	37 34 37 34 35	48 48 62 50 60	42 40 43 42 43	49 50 56 48 43	41 35 39 38 36	53 52 47 46 43	38 38 40 41 37	52 53 63 62 54	40 39 42 43 42	55 55 63 56 46	35 39 44 41 43	52 51 64 57 67	47 46 49 50 50	60 60 68 53 68	46 43 42 50 47	54 53 56 45 44	41 38 41 39 40	63 51 46 50 42	41 32 36 37 36	64 60 55 53 50	38 34 29 26 26	64 58 68 60 69	41 41 41
8 8 0 1	50 46 44 40 49 41	37 ·28 20 32 33 26	35 30 37 44 46 33	24 18 22 16 24 23	44 46 39 41 53 38	33 26 25 35 31 29	48 41 49 44 42 42	38 33 31 38 35 34	46 43 39 41 44 39	34 28 25 34 29 29	46 44 50 42 52 41	33 27 31 37 38 30	43 48 46 44 46 43	30 24 30 40 36 27	51 49 55 44 50 41	39 28 26 39 38 29	53 45 50 47 47 47	43 37 33 44 41 42	53 50 59 48 52 43	41 30 27 41 40 32	48 46 51 44 48 37	34 29 29 38 33 29	48 46 44 41 51 45	34 25 28 35 35 27	54 46 57 56 52 48	36 26 31 32 31 30	51 48 53 49 50 43	3 3 4 3 3
Ins	54.2	30.8	43.8	28.7	53.0	34.0	52.2	38.8	51.4	33.0	52.4	36.7	53.8	35.9	56.7	36.4	55.1	44.4	61.3	38.6	52.9	37.1	53.3	34.3	57.5	32.4	58.2	40.
							So	outh C	arolina													Geo	rgia.					
ate.	Charle	eston.	Colu	mbia.	Conv	vay.§§	Fergu	ison.§§		orge- wn.		een- le.§§	New	berry		iety ill.	Alba	ny.§§	Atla	nta.	Aug	usta.		hlo- ga.	Ma	con.	Ron	1e.§§
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	66 56 58 66 68	54 52 53 49 48	53 56 59 67 70	48 48 50 45 46	62 54 61 64 70	50 51 51 42 38	68 60 59 67 71	54 50 51 44 39	65 60 58 68 70	54 50 52 43 43	50 61 64 67 70	44 44 39 39 35	58 55 60 66 68	41	60 65 64 71 70	46 43 41 39 44		50 54 48 44 46	58 50 58 61 62	46 46 43 47 43	57 58 64 66 69	51 49 50 46 41	55 52 61 61 66	46 42 42	64 54 61 65 68	50 47 46 43 41	64 61 64 61	4 4 4
6 7 8 9	72 66 50 44 54	54 50 38 31 32	69 64 49 45 56	49 49 31 26 24	72 70 44 45 55	44 45 36 25 21	69 67 46 55 57	42 49 38 28 20	75 64 58 57 58	53 35 26 26 28 22	63 62 64 47 56	35 47 26 20 19	69 62 56 46 56	29 21	61 44 45 58 54	20	48 45	54 58 36 27 26	63 60 37 44 53	55 37 24 23 31	66 64 47 48 57	50 47 32 27 25	64 59 49 45 52	47 21 17	64 64 44 46 55	26	63 56 46 48 53	4 4 2 2 2 2 2
1	57 55 57 64 58	38 38 36 41 51	56 55 64 62 61	32 38	59 67	29 26 25 27 36	57 60 62 65 63	20 29 32 32 40	66 68	38 28 26 36 28	59 57 64 58 64	24 24 29	63 58	24 24 28	65	24 27 43	61 65 69	30 35 37 40 44		36 39 42 45 45	56 57 62 62 62	30 27 31	53 53 58 50 57	25 22 36		29 27 32	53 56 60 50 60	1 2
6 7 8 9	64	45 48 51 47 47	63 59 63 52 57	42 46 38	56 66 52	33 35 46 37 41	66 64 68 50 60	37 39 45 40 32	70 54	48 39	66	31 38 34	64	37 41 35	59 48 55	37 33 33	62 70 78	48 46	65 57 47	51 45 40	65 58 64 52 59	45 49 44	57 53	38 43 39	66 66 53	45 46 41	50	4 50
1 2 3 4	69 61	47 50 57 53 45	54 54 51 51 56	45 47 47	64 68 51	37 38 51 51 49	69 61 72 62 64	33 45 51 52 52	65 70 65	42 52	51 49	37 39 41	53 50 50	43 45 45	54 54 51	41 44 44	62 65 59	49 52 56	57 49 49 48	39 35	57 54 53 59	42 49 47	51 51 46	39 40 30	54 57 52	47 47 42	50 50	20.00
8 9 1	51 60 55 59	39 35 43 49 45 38	51 52 53 46 54 44	30 32 41 42	50 53 55 50	29 36	77 54 58 49 55 45	45 40 40 42 45 37	55 55 60 52	32 30 43 43	47 48 42 63	26 27 28 39	50 50 47 55	27 30 41 41	53 43 51 39	25 40 40 31	53 63 60 52	44 48 48	47 46 44 50	34 41 39	47 54 54 47 54 46	31 32 44 41	43 42 44 55	25 28 38 38	50 55 53 52	29 31 44 43	43 44 50	04
	58.7		1	1	58.7				61.6		1	33.3	-				61.7	1				40. 4		35.2			53.3	

Mns.. 70.5 54.3

54.7 36.9

TABLE 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No 2—Contin

			Geo	rgia.													Flori	da.				100					
Savan	nah.							Avon	Park.									Mian	ni.			Orlar	ndo.	Pensa	cola.	Talla	has-
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
73 56 58 66 70	54 51 54 49 51	83 63 68 64 71	61 51 46 44 45	82 57 59 66 71	60 51 51 46 43	63 60 64 65 67	60 49 39 42 43	83 80 70 73 77	62 60 56 60 55	82 81 71 72 75	65 61 54 60 57	79 67 59 65 71	66 53 54 54 50	79 77 72 75 75	70 70 61 61 63	80 57 71 67 75	54 50 53 43 44	80 77 72 77 77	64 62 57 57 53	77 66 68 67 72	64 61 56 59 50	84 71 74 76 74	60 58 53 56 50	76 66 66 65 69	61 55 50 52 55	83 58 68 67 73	
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a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record. §§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

58.9 41.5 54.5 39.8 57.1 36.9 61.3 46.4 58.0 42.5 54.9 37.5 60.3 39.8 63.7 46.5 54.9 36.6 60.1 40.2

# CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 3, OHIO VALLEY.

Prof. FERDINAND J. WALZ, District Editor.

#### GENERAL SUMMARY.

The chief characteristics of December, 1913, weather in the Ohio Valley were unseasonably mild temperature the greater part of the month, excessive cloudiness and small amount of sunshine, and deficient precipitation. Other important features were the absence of the severe winter storms and cold waves so common to this month, the large number of days with fog, and the small daily range in temperature during the last 10 days, when on most days there was a difference of only 5° or 6° or less between the highest and lowest temperatures of the 24 hours.

Snowfall was unusually light for December over most of the district and the ground was practically bare over the principal agricultural portions during the whole month. The storm about the 25th-26th was the only extensive snowstorm of consequence during the month.

On the whole the month was considered favorable for fall-planted crops, while pastures over large areas were in better condition than during most of the summer months. Precipitation, while deficient in amount, was well distributed over the district and through the month.

High pressure dominated the weather conditions over the district in the periods 1st-5th, 8th-19th, and 26th-31st, while simultaneously low-pressure formations drifted slowly eastward far to the north. Only three general barometric disturbances affected the weather of the Ohio Valley to any great extent during the month. These were: (1) A depression of considerable energy centered the morning of the 6th over Missouri, moved rapidly northeastward during the 6th and 7th across the Lake region to New England by the morning of the 8th, increasing enormously in energy as it proceeded to the North Atlantic coast; (2) a low centered over the west Gulf coast on the morning of the 22d, moved up the Mississippi Valley to the lower Ohio Valley by 7 p. m. of the 22d, and on the morning of the 23d covered practically the whole Ohio Valley, but moved out rapidly that day to the northeast; and (3) a storm which was centered about the central Gulf coast at 7 p. m. the 24th, moved northeastward to Georgia and eastern Tennessee with greatly increased energy by the morning of the 25th, to the Virginia coast by the afternoon of the 25th, to the New Jersey coast by the morning of the 26th, and was off the New England coast on the morning of the 27th.

The following table summarizes the chief features of meteorological interest for the several sections of the district:

	7	remper	atur	e.			Precip	oitation	1.		
Portions of States in- cluded in the Ohio River Basin.	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest monthly.	Least monthly.	Greatest in 24 hours.	Average number of days.	Average snowfa
New York	31. 4 33. 6 32. 5 36. 4 34. 7 37. 2 38. 4 39. 5 41. 9 43. 2 45. 4 40. 1 36. 8	+2.5 +3.9 +2.5 +3.1 +5.2 +5.1 +3.1 +2.4 +1.1 +2.7 +2.3	53 66 59 68 64 69 69 70 72 71 70 74 67	-1 -6 -1 4 -3 6 14 11 6 17 12 6 -3	2. 14 2. 41 2. 61 2. 85 1. 98 1. 13 1. 31 2. 73 2. 88 3. 60 3. 56 2. 83	-0.85 -1.11 -0.43 -0.96 -1.82 -1.37 -1.24 -1.56 -1.20 -0.65 -0.68	2. 23 4. 11 2. 96 3. 81 3. 61 2. 50 2. 97 4. 69 6. 06 5. 59 7. 23 3. 80	2. 06 0. 69 2. 41 1. 10 0. 53 0. 32 0. 34 1. 21 0. 55 2. 77	0.75 1.59 1.00 1.38 1.50 1.00 1.05 1.61 2.06 2.55 1.82 1.91	9 9 9 8 7 6 6 7 9 10 6 8 8	8.8 7.7 10.0 2.4 3.4 1.2 2.0 1.5 0.6 T. 0

## TEMPERATURE.

The month opened warm, and the mild conditions prevailing during practically the whole of the latter half of November continued until about the 7th of December. During the first week the average daily temperatures ranged from 8° to nearly 20° above normal, while maximum temperatures during that period registered between 50° and 70° in practically all parts of the district. A change to colder came about the 7th, and during the 8th and 9th some of the coldest weather of the month occurred. Minimum temperatures in that period registered from 4° to 20° over Ohio, West Virginia, southwestern Virginia, and western Pennsylvania, and from 10° to 20° over nearly all the rest of the district. Unseasonably warm weather again set in about the 10th and continued with an occasional short interruption, until the 24th. From the 25th to the 31st temperatures were mostly below normal, and minimum temperatures below zero were registered for the first time during the month. During this period temperatures below zero occurred at a few stations in northeastern Ohio and the western portions of Maryland, Pennsylvania, and New York and at one station in southwestern Virginia, but over the rest of the district minimum temperatures ranged between 4° and 17°

In several of the sections, namely, West Virginia, Illinois, Kentucky, and Alabama, minimum temperatures for November were lower than those for December for those sections, respectively. In Tennessee the minimum temperature was 6° for both months.

For the month as a whole the temperature averaged from  $1.1^{\circ}$  to  $5.2^{\circ}$  above normal in all the sections. There were but two or three stations in the entire district where the average temperature for the month was below normal, the excess at the other stations ranging from  $+1^{\circ}$  to  $+7^{\circ}$ .

#### PRECIPITATION.

The total precipitation for the month averaged below normal in all the sections, the deficiency ranging from -0.65 inch for western North Carolina to -1.82 inches for Indiana. In general the total amount for the month at the various stations ranged between 1 and 3.5 inches, but over a considerable area in Indiana and western Ohio the amounts were less than 1 inch, while over comparatively small areas in the upper watershed of the Tennessee River there were amounts ranging from 4 to 7 inches. The largest rainfall at any station was 7.23 inches at Highlands, N. C., and the least 0.32 inch at Anderson, Ind.

On the whole the rainfall, while deficient as compared with the normal, was well distributed and ample for all practical needs. Precipitation was moderate to heavy in amount and more or less general over the district in the periods 1st-2d, 6th-8th, and from the 23d to 26th, inclusive. It was also moderately heavy in portions of Tennessee on the 14th, 15th, and 18th, and in North Carolina on the 29th to 31st, inclusive.

Snow, ranging in amount from a trace to 4 inches fell over the northern portion of the district including Kentucky on the 7th-8th, over western Pennsylvania on the 10th-11th and quite generally over the district on the 25th and 26th. The total snowfall for the month over eastern Ohio, West Virginia, southwestern Virginia, and the western portions of Pennsylvania and New York, ranged between 2 and 13 inches, while there were from 2 to 6 inches over the mountain sections of North Caro-

lina. Over the rest of the district the amounts varied between a trace and 2 or 3 inches and were generally abnormally small for December. On the morning of the 29th there were 4 to 8 inches or more of snow on the ground over the Allegheny, Kiskiminitas, and Youghiogheny River watersheds; 1 to 5 inches over the Beaver River watershed; 1 to 3 inches over that of the Monongahela, and from a trace to 3 inches over the rest of the district north of Tennessee. On the 31st from 1 to 6 inches of snow fell over much of western North Carolina and southwestern Virginia and from 0.5 inch to 2 inches over West Virginia, but did not reach other sections of the district.

#### MISCELLANEOUS.

Thunderstorms occurred on the 1st in Kentucky and Illinois, on the 7th in Pennsylvania and West Virginia, on the 21st in Pennsylvania, Maryland, West Virginia, and Ohio, on the 22d in Pennsylvania, and on the 25th in Pennsylvania and North Carolina. Sleet occurred in Kentucky, Ohio, and West Virginia on the 7th, and over much of the district from Tennessee northward on the 25th; also there were several other days in the period 21st–28th when sleet occurred in various localities. A damaging hailstorm, with a wind velocity of 47 miles per hour, occurred in Pittsburgh, Pa., on the 7th. There were many days with dense fog in Ohio and Kentucky, and sections bordering the Ohio River, from the 5th to the 18th and from the 22d to the 29th. Navigation on the Ohio River was greatly interrupted on account of the fog and entirely suspended on a number of days.

#### RIVERS.

River stages in the main stream and all tributaries were generally low during the entire month, and streams were free from ice.

Table 1.—Climatological data for December, 1918. District No. 3, Ohio Valley.

			year	Tem	peratur	e, m	degr	ees ra	nren	heit.	Pre	cipitatio	n, in ir	iches.	days,		Sky	*	direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of	Prevailing wind	Observers.
New York.																				
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Pennsylvania.																				
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Maryland. eer Parkrantsvilleakland	do	2,457 2,351 2,461	20 20 14	33.0	+ 3.6 + 4.0 + 4.1	55 57 59	6 6	- 1 - 4 - 1	28 28 28	33 31 35	2.46	- 1.31 - 1.36 - 0.65	0.71 1.00 0.62	11.0 6.0 13.0	8 6 13					S. P. Specht. J. S. Miller. R. E. Weber.
West Virginia.		2, 101	-	10.0				Ŷ	-											
ancroft eckley ens Run luefield uekhannon airo. entral Station harleston reston uba oane likhorn likhorn lien yille en silve rafton occomb untington ewisburg ogan ost Creek adison amington amington amington amington amington	Raleigh Pleasants Mercer Upshur Ritchie Doddridge Kanawha Wirt Jackson Weyne McDowell Randolph Marion Gilmer Taylor Summers do Nicholas Cabell Greenbrier Logan Harrison Boone Marion Marion	1, 933 1, 940 883 738 1, 000 1, 600 1, 450 538 2, 200 687 1, 026 704 974 2, 131	10 14 12 19 23 11 11 28 12 13 6 21 14 21 24 21 18 13 11 17 8	38. 6 35. 8 38. 9° 34. 4 36. 0 42. 0 38. 0 36. 2 40. 4 34. 3 35. 5 39. 0 37. 7 36. 6 38. 2 35. 4 37. 5 37. 0	+ 3.4 + 1.3	60 67 59 61 55 67 <sup>b</sup> 56 59	6 1 1 1† 1 7 6 6† 6† 6 6 6 6 6 3 6 5 1	17 9 11 11° 13 9 10 19 9 8° 14 12 15 11 15 13 14 8 18 11	28 9 9 9 8 28 28 9 9 28 8 8 8 8 8 8 8 8	40 28 38° 31 35 40 35 41 38 34 39 39 38 34 38 31 36 38 35 36 37	1. 26 3. 28 2. 02 2. 87 3. 81 2. 63 3. 20 3. 60 1. 98 3. 16 3. 16 3. 45 3. 45 3. 45 3. 45 3. 45 3. 45 2. 28 2. 71 2. 80 2. 80 2. 87 2. 87 2. 80 2. 80	- 0, 40 - 1, 81 - 1, 81 - 1, 0, 55 - 1, 04 - 1, 06 + 0, 34 - 0, 24 + 0, 02 + 0, 43 - 0, 09 - 0, 11 + 0, 03 - 0, 09 - 0, 11 + 0, 39 - 0, 97 - 0, 26 - 0, 44 - 0, 40 - 0, 44 - 0, 40 - 0, 40	1.06 0.98 1.36 0.80 0.96 1.05 0.89 1.00	1.0 6.0 1,4 0.5 2.0 3.0 3.5 2.5	9 5 7 6 8 12 12 9 8 4 4 11 10 6 8 8 10 7 8 6 10 9 9	3 13 20 14 9 1 7 6 8 9 11 8 16 9 7 7 7 8 18 10 9 8 14 1	9 5 10 10 12 6 4 6 0 8 3 4 5 6 6 4 11	6 15 17 14 15 20 13 12 8 17 17 15 14 21 20 18 7 17 15 6	me. w. w. w. mw. nw. w. w	R. E. Dent. John A. Ewart. J. D. Riggs. Norfolk & Western Ry. H. A. Darnall. Van A. Zevely. G. W. Sherwood. R. C. Hewes. J. M. Reed. C. T. Perry. L. A. Smith. J. J. Lincoln. U. S. Weather Bureau. F. P. Hall. Joe N. Craddock. Joseph Gerken. Arthur George. J. B. Lavender, C. E. R. E. Ferguson. L. H. Hutchinson. Geo. T. Argabrite. Dr. J. E. McDonald. Allen Smith. S. E. Bradley. Jas. A. Morgan. C. J. McCarty.
organtown oundsville. ew Cumberland ew Martinsville uttailburg. arkersburg. arsons hillppl ickens olnt Pleasant owellton rinceton obertsburg yan mithfield pencer atton erra Alta nion alley Fork fellsburg reston rilliamson	Monongalia Marshall Hancock Wetzel Fayette Wood Tucker Barbour Randolph Mason Fayette Mercer Putnam Roane Wetzel Roane Braxton Preston Monroe Clay Brooke Lewis Ohio Mingo	1, 250 642 987 634 2, 252 638 1, 656 1, 149 2, 697 2, 697 700 835 784 839 2, 612 2, 250 1, 225 1, 225 645 660	9 11 14 20 21 25 14 21 23 23 16 13 13 10 9 15 10 10 19 25 29 12	36. 8* 37. 0 3. 8 37. 9 36. 2* 36. 1 34. 8 37. 1 34. 8 37. 1 34. 8 37. 1 34. 8 37. 1 37. 0 35. 4 34. 5 37. 0	+2.7 $+3.2$ $+2.7$ $+3.1$	55 62 55 61 59 56 62 55 60 65 60 65 60 65 68  62  62  68  62  68 68 68  68  68  68  68  68  68  68  68  68  68  68  68  68  68  68  68  68  68 6  6 6 6 6	6† 2 11 1 6 3 6 1† 6 2 6 19 5 6 12† 6	12 14 5 19 10 10 10 9 12 8 14 15 8 14 8 13 8	28 28 28 8† 9 10† 28 9 9 9 8 8 9 9 28 9 9 28 9	23a 34 27 31 31 38 35 45 36 42 42 43 44 44 37 24 36 30 28	2. 99 2. 20 3. 41 2. 75 2. 50 3. 41 2. 60 2. 70 3. 18 3. 33 3. 52 2. 92 1. 80 1. 10	$\begin{array}{c} -1 \ , 30 \\ -1 \ , 10 \\ -0 \ , 27 \\ +0 \ , 06 \\ -0 \ , 51 \\ -0 \ , 02 \\ -1 \ , 43 \\ -0 \ , 29 \\ -2 \ , 11 \\ +0 \ , 40 \\ -0 \ , 20 \\ -0 \ , 20 \\ -0 \ , 20 \\ -0 \ , 20 \\ -0 \ , 20 \\ -0 \ , 20 \\ -0 \ , 20 \\ -0 \ , 20 \\ -0 \ , 34 \\ -1 \ , 76 \\ -1 \ , 39 \\ -1 \ , 39 \\ -1 \ , 58 \\ -0 \ , 58 \\ -0 \ , 03 \\ -0 \ , 58 \\ -0 \ , 03 \\$	0.68 0.78 0.80 0.90 0.90 0.65 0.88 1.32 1.38 0.80 1.25 0.96 0.74 0.70 1.04 0.80	4.5 T. 2.0 1.1 6.5 6.8 16.0 T. 3.0 0.5 4.2 6.0 1.4 2.0 T.	8 7 4 7 9 11 13 7 9 11 6 8 9 9 11 6 6 7 11 13 7 9 11 11 11 11 11 11 11 11 11 11 11 11 1	3m 8 6 3 10e 9 11 8 11 12 4 1 12 12 0 0 6 5 10 9	16a 3 5 111 4s 1 7 11 6 5 5 101 14 1 4 4 10 16	11a 20 17 10s 21 13 12 14 14 15 19 15 9 15 9 15 15 11 17 11 17 19	S. S	Prof. Edgar L. Andrews M. L. Brown. Frank S. Evans. Wm. Ankrom. Miss Donna Tully. U. S. Weather Bureau. J. W. Swisher. J. D. Dadisman. Dr. J. L. Cunningham. W. D. Holmes. Morris Hansford. H. Scott. E. P. Turley. Wm. E. Ryan. G. M. Whistler. A. M. McKown. Ben Gillespie. Prof. Wm. R. Shaw. Shelton Clark. Miss Blanche Pierson. C. P. Waugh. Miss C. M. Davis. Miss M. B. Forsyth. J. F. Keyser.
Ohio.						60	10	4	9	35	3. 49		1.06	0.3	7	9	4	18		F. W. Gibson.

Table 1.—Climatological data for December, 1913. Disrict No. 3—Continued.

			years.	Tem	peratur	e, in	degr	ees Fal	hrenl	heit.	Pre	cipitation	n, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length ofrecord,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	iny	Number of clear days.	Number of part- ly cloudy days.	Number of	g wind	Observers.
Ohio-Continued.																				1
Bellefontaine		1,276 637	34	33.3	+ 3.8	60	2	11	9	27	1.30	- 1.60	0.54	2.3 T.	8 10	10 11	7 2	14 18	nw. ne.	Cory L. Lane. Mrs. Ella M. Wilson.
Bladensburg	Knox	1,100	20		+ 1.1	62#	2	34	27	35#				4.1						Miss Mary Elliott.
rilliantadiz	Jefferson	700 1,245	9	36.3		56	21	10	29 28	20 25	1.53		0.68	6.7	7	6	5 7	22 18	6.	Mrs. Mary K. Pennell.
mbridge	Guernsey	803	21	33.8	+ 2.6	63	1	8	28†	35	2.28	- 0.90	0.62	2.0	6	5	14	12	******	Harry B. McConnell. Samuel Mehaffey.
mp Dennison	Hamilton	570 884	20 20	36.0	+ 2.8	60	2	.15	9	31	1.66	- 1.14	0. 52	0.2	7	11	8	12	sw.	Henry F. Pinkvoss. Francis L. Bixler.
nton	Stark	1,089	30	33.6	+ 2.6	54	2	12	28	29	1.91	- 0.83	0.52	7.2	8	13	1	17	sw.	Carl H. Meyer.
rdington		1,010 630	18	33.80	+ 3.8	616	1†	10b	9	266	1. 12 1. 93	- 1.38	0.40	1.0	7	8	1	22		J. W. Shaw. Marion Mackey.
ncinnati	Hamilton	628	42	39.1	+ 2.7 + 1.5	60	2	17	8	34	1.28	- 1.65	0.36	0.5	7	5	9	17	w.	U. S. Weather Bureau.
rclevillearington	Monroe	694 600	25 10	34.2	+ 1.5 + 2.7	61 58	1	15 10	9	28 36	3.04	+ 0.64 - 0.19	1.10	0.2	8 9	13	0 4	18 19	SW.	Dr. H. R. Clarke.
lumbiana	Columbiana	1.114		32.0		51	2	- 1	28	26	1.80		0.74	3.9	7 7	10	9	12	SW.	Col. S. Tschappat. C. E. Wolfgang.
lumbusshocton	Franklin Coshocton	918 770	35	35. 5	+ 2.7	59	2	17	28	29	1. 13 2. 10	- 1.63	0.29	0.5	7	7	5	19	SW.	U. S. Weather Bureau.
yton (1)	Montgomery	899	2	36.2	+ 3.4	60	2	14	8	34	0.72	- 1.90	0.21	0.7	8	7	6	18	sw.	Mrs. Ada Jeffries. U. S. Weather Bureau.
laware	Delaware	790 896	32 16	35. 5	+ 2.6 + 3.8	60	2	16 10	8 9	30 29	0.98	- 1.69 - 1.48	0.23	2.4 3.5	8	10	3	18	sw.	Mrs. Edith E. L. Boyer
mos	Belmont	1,325	25	32.8a	+ 0.4	58	2	9n	28	23 u	2.95	+ 0.09	.81	3.7	8	9	4	18	SW.	De Witt H. Leas. J. T. Dysart.
ennisonankfort	Tuscarawas Ross	846 745	21	34. 2		58	2	7	28	31	2.14	*******	. 59	4.0	9	12	4	15	n.	Water Supply Co.
llipolis	Gallia	580	1			****				****	2.56		1.20		5					O. A. Cory. Samuel F. Neal.
rrettsville	Portage	1,005 960	29 31	35. 0a	+2.8 + 3.8	53 62a	14	- 1 8a	28	33 29a	1.83	- 1.10 - 1.91	0.29	11.5	9 7	5 7	7	19 23	nw.	S. M. Luther. Dr. L. E. Davis.
een	Adams	500	20	37.8	+ 2.6	62	1	16	28	36	2.38	- 0.82 - 1.31	0.95	2.0	4	11	2	18	W.	W. F. Kenyon.
een Hilleenville	Columbiana Darke	1, 135 1, 060	20 27	31.0	+ 2.2 + 5.1	55 60	2 2	- 2 15	28 8†	31 33	1.35 0.61	- 1.31 - 1.85	0.46	5.5	8	8	10 16	13 11	SW.	Jos. E. Bentley.
milton	Butler	601	1	35.7		64	1	16	8	34	0.79		0.36	3.0	5	9	6	16		Geo. A. Katzenberger. Earl W. Stout.
ydenville ilsboro		700 1.063	34	34.8		58	3	9	27	37	2. 53	******	0.90		5	11	8	12	W.	H. W. Stiers. Carey H. Roush.
nton	Lawrence	575	30 21	37.8b	+ 2.2	616	5	16b	8	35b	3.42	+ 0.57	1.17	T.	6	7	10	14	SW.	James Bull.
nton llbuck		1,015 1,087	20	33.6	+1.9 + 3.4	62	2 3	10	8 28†	31 29	0.53 $2.28$	- 1.90 - 0.51	0.25	1.0 8.0	6	8 23	10	13 8	8W.	Frank B. Rarey. John A. Schonauer.
ngs Mills	Warren	640	1								1.85		0.45		8	6	2	23	SW.	Frank M. See.
ncaster Connellsville	Fairfield Morgan	898 710	18 29	34.8	$+3.9 \\ +1.8$	60 59	2 2	12	9	28 31	2. 24 2. 51	- 0.87 - 0.43	0.95	1.5	7	9 7	3 7	19 17	nw. sw.	R. L. Renshaw. C. H. Morris.
rietta	Washington	627	93	36.6	+ 2.3	60	1	15	9	26	2.85	- 0.58	0.87	0.2	8	8	4	19	8.	Prof. T. D. Biscoe.
rion lfordton		980 1, 200	35	34.8	+ 4.4 + 4.3	62	2 2	15 8	9 9†	31 28	1.57 2.59	- 1.00 - 0.39	0.48 1.25	3. 0 6. 0	8 7	5	7 7 7	19	SW.	Dr. E. H. Raffensperger
lligan	Perry	875	20	34.5	+ 2.6	65	2	4	9	37	3.30	+ 0.36	0.84	4.0	777	8 7	7	17	nw.	L. H. Burgess. V. C. Eveland.
llport		1,145 850	20 13	32.0	+ 4.0 + 6.0	54 60	21	- 3 8	28	32 29	1.66 1.25	- 1.13 - 1.69	0.50	7.0		3	12 7	16 13	SW. W.	V. C. Eveland. G. F. Copeland.
io State University	Franklin	757	30		+ 3.7	59	1+	15	22	27	1.66	- 0.97	0.46	3.3	7	8	4	19	nw.	Ethel L. Gammertsfelde Prof. H. C. Lord.
egoniataskala	Warren	690 1,015	21	33.8	+ 3.3	60	2	10	28	27	2.02	- 1.26	0.78	2.4	8	4	9	18	sw.	E. H. Stephens.
ebles	Adams	645	2	35.8		61	2	9	9	38	3.11		1.02	1.5	9	10	4	17	nw.	J. N. Ridenour. Ora O. Smalley.
ilo lua		1.018 847	18	35. 2	+ 3.8	60	2	11	28†	26	2. 59 1. 39	+ 0.17	0.76	4.4 3.5	7 5	10	6	15 20	nw. se.	L. C. Burckholter.
attsburg	Clark	1,130	20		+ 3.4	60	2	14	81	27	1.86	- 0.99	0.52	5.0	7	8	5	18	n.	Harry L. Roberts. F. E. Stewart.
rtsmouth	Scioto	527 985	82 30		-0.7 + 4.7	64 64a	2†	16 14a	29	35 28a	$3.61 \\ 0.82$	+ 0.26 - 1.87	1.50 0.20	4.0 2.7	4 7	11 6	3 6	17 19	SW.	Dr. H. A. Schirrmann. Hamline B. Blake.
merset	Perry	1,080	14	35.0	+ 3.6	61	1	12	9	27	2.01	- 0.56	0.85	5.0	6	8	6	17	S.	Miss M. W. C. Sheridan.
ringfield mmerfield	Noble	980 1, 187	19	34.2		60	2	8	28†	31	1.14 2.84	- 1.56	0.28 0.85	2.7	6 7	10	7 4	14	sw.	W. A. Webster. H. R. McClintock.
racuse	Meigs	583	2	36.4		57	3	14	9	31	2.81		0.79		6	10	9	12		Irving R. Karr.
urman	Gallia Licking	696 789	20	35. 5h	+ 2.0	59 60h	1	15	91	32 30h	1.83	- 1.04	0.65	2.5	6	7	7	17		D. D. Thomas. H. A. Albyn.
oana	Champaign	1,031	45	35.0	+ 6.3	61	1†	12	9	29	1.10	- 1.93	0.24	4.0	6	6	11	14	SW.	Prof. J. H. Williams.
verlyynesville	Trumbull	900 590	24 30	36.4	+ 3.3 + 2.3	54 62	13	3	28	27 35	2.31 2.54	- 0.82 - 0.45	0.82	13.5	8 6	11 10	8	12 20	sw. n.	M. D. McCorkle. Dr. Peru Hutt.
ynesvilleoster	Warren Wayne	700 1,030	28 34	36. 0 33. 7	+ 5.3	59 56	1 2	16	8 28	29 27	1.32	- 1.40	0.30	1.5	6	6	9	16	SW.	Charles Michener.
ingstown	Mahoning	846	20	33.7		50		7		27	1.92 1.16	- 0.77 - 1.16	0.45	6.5	9 7	8	2 0	19 21	SW.	Experiment Station.  J. M. Dickey.
esville	Muskingum	700	26			****	2000				2.47	- 0.21	0.85	1.2	10	8	0	23	8.	S. G. Sprague.
Indiana.						1	9						*							
lerson	Madison	892	18	36.2	+ 6.4	59	1	13	27	33		- 2.36	0.23	0.4	4	13	5	13	w.	W. H. Stanton.
omingtonffton	Monroe Wells	744 835	18 18	34 6	+ 5.5 + 6.4	60	2† 1†	15 7	9 27	30	1.88 1.27	- 1.68 - 1.19	0.82	1.6	8	9 10	3 3	19	SW.	Earl E. Ramsey. George R. Rinehart.
lerville	Jennings	767	28	38.6	+ 5.1	62	1+	15 10	8† 27	32	1.35	- 1.80	0.46	3.1	7	10	5	16		C. F. Hole.
bridge City	Wayne Bartholomew	941 632	22 30	36. 8 36. 7	+ 5.1 + 7.4 + 4.1 + 4.5	69 60	1 2	10	27 9†	43	0.58	- 1.80 - 2.28 - 1.76	0.38	T.	7	8 9	0	23	n. nw.	Heze Barnett. R. D. Perry.
nersville	Fayette	769	31	36. 2	+ 4.5	61	2	14	27	35	0.45	- 2.33	0.25	1.0	3	10	8 5	13	SW.	H. T. Swindler.
wfordsville	Montgomery	780 668	3 28	37.4	+ 6.3	60	1	16 16	8† 22	27	0.59	- 1.39	0.30	0.5 T.	5	9	5	17	nw.	P. H. Burns. L. A. Higginbotham.
nsville	vanderburg	386	37	40.4	+ 4.0 + 6.4	63	1	22 17	8	28 27	1.62	- 2.21	0.74	2.8	7	8	5 7 8	16	ne.	U. S. Weather Bureau.
mersburgmland	Randolph	1, 101	15 31	37. 8 36. 1	+ 6.4 + 4.2	60	1 2	17	9 27	28 26	1.03	- 1.83 - 2.00	0.43	1.0	6	8 9	8	15 22	8. 8W.	Miss Carrie Yeager.
est Reserve	Clark	478		38.0	T 4.4	62	5	13	9	33	1.86	- 2.00	0.53	1.5	7	8	6	17		Ralph E. Lyst. Ambrose Waltman.
enfield	Hancock	905 954	10 17	36. 8 38. 2	+ 7.5	60	1	15 12	8	30 26	0.43		0.18		3	5 10	11	15	w.	Frank Larrabee.
ensburgkory Hill.	Brown			00 .	+ 1.0	60	5	16	8		0.55	- 2.38	0. 20 0. 30	1.0	6	10	3	18 15	w.	C. C. Morrison, M. D. Benjamin W. Douglass.
ntingburgntington	Dubois	462 741	5 20									******								H. Dufendach.
iananolis	Marion	822	41	37.2	+ 6.4	60 58	1 2	12 16	27 8	32	0.85	- 1.94 - 2.55	0. 28	0.4	5 7	6	8	15 19	SW.	Chas. McGrew. U. S. Weather Bureau.
ersonville.	Clark	455	31	39.0	+ 2.2	62	2	20		31	1.57	- 1.83	0.51	T.	6 7	7	11	13	W.	John C. Loomis.
yville	Warren Howard	450 840	6 21	36. 4 35. 9	+ 6.2	59	1	16 15	81	36	1.14	- 1.62	0.46	0.3 T.	7 5	10 7	8	18 16	sw.	W. A. Hill. P. H. Robertson.
AVELLA	Tippecanoe	617	34	35.9	+ 6.6	58	1	17	8 8	26	0.67	- 1.91	0.20	T.	6	10	5	16	SW.	Wm. J. Jones, jr.
ansportlison	Cass. Jefferson.	620 460	33 21	36.4	+ 3.4	58 61	1+	17	81				0.59	T. 0. 2	8	10 8	13	19	e. sw.	Chas. Massena. Miss F. Cooperider.
engo	Crawford	363	91			20.00	-	20	~	-	41 00	41.01	40. 20	01.4	0	0	AU	44	51.44	J. M. Johnson.

TABLE 1 .- Climatological data for December, 1913. District No. 3-Continued.

			, years.			1	-		1	1				1	days,			_	direc-	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
Indiana-Continued.							-													
farion. fauzy fonticello. foores Hill. fount Vernon. fashville. ashville. all. rinceton. tichmond. tochester. cockville. tome. alamonia. alamonia. alamonia. alem. cottsburg. eymour. helbyville. hoals. eedersburg. evay. incennes. Vashington. Vhitestown. Vinna Lake. Vorthington.	Grant. Rush. White. Dearborn. Posey. Brown. Orange. Gibson. Wayne. Fulton. Parke. Perry. Jay. Washington. Scott. Jackson. Shelby. Martin. Vigo. Fountain. Switzerland. Knox. Daviess. Boone. Kosciusko. Greene.	611 481 972 775 772 370 950 717 570 610 768 612 525 431 484 529 865	27 33 3 12 27 16 31 28 8 20 19 6 6 23 14 32 21 17 5 6 6 31	35. 0 37. 2 39. 0 36. 3 37. 4 39. 6 34. 6 37. 5 40. 6 34. 2 37. 8 38. 4 39. 2 37. 2 36. 8 37. 2 38. 9 38. 5 38. 5 38. 5 38. 5 38. 5 38. 5 38. 6	+ 4.7 + 4.7 + 4.2 + 6.1 + 4.0	60 61 59 64 62 63 60 62 62 61 65 63 60 61 62 58 58 59 61	1 2 2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12 11 16 19 11 12 17 11 16 16 6 15 17 16 14 18 18 19 11 11 17	27 27 8 9 9 9 9 27 8 8 9 9 8 9 9 8 9 9 8 9 9 8 9 8 9 8 9	37 33 34 32 33 30 33 30 35 30 22 25 25	0. 48 1.00 0. 82 1. 74 1. 18 1. 60 0. 38 1. 81 0. 38 1. 10 2. 03 1. 43 0. 87 2. 00 0. 57 0. 94 1. 15 1. 15 1. 10 2. 50 1. 15 1. 10 1. 10 1	- 2.07 - 1.20 - 2.29 - 1.53 - 1.79 - 1.25 - 1.29 - 1.66	0. 16 0. 16 0. 63 0. 35 0. 70 0. 35 0. 47 0. 62 0. 11 0. 40 0. 56 0. 32 0. 57 0. 46 0. 20 0. 38 0. 42 0. 62 0. 10 0. 38 0. 35 0. 35	1.0 2.0 1.0 2.5 1.0 4.1 2.0 0.8 4.1 3.2 2.0 0.1 7.5 1.0 0.4 1.5 1.0 0.1 7.5 1.0 0.4 1.7 7.7 7.7 7.7	5536666555 691077866556661055866	6 7 9 12 11 8 9 11 5 8 11 4 6 6 9 9 3 8 8 7 9 8 11 12 7 7 3 9	10 4 4 11 06 8 22 10 6 11 8 9 9 15 2 2 8 9 15 2 16 16 16 16 16 16 16 16 16 16 16 16 16	15 20 18 18 20 17 14 18 16 19 13 21 14 14 14 13 13 21 20 20 20 15 20 14 10 11 11 11 11 11 11 11 11 11 11 11 11	SW. SW. SW. NW. SW. NW. SW. NW. SW. SW. SW. SW. SW. SW. SW. SW. SW. S	James F. Hood. Elwood Kirkwood. J. E. Loughry. W. S. Bigney. Guy B. Green. W. C. Goble. James A. Gillum. Albert Mills. Walter Vossler. Dean L. Barnhart. C. A. Lee. Adam Anspach. S. A. Armstrong. Emmet S. Allen. Frank H. Park. J. Thomas Hays. Edgar G. Hodson. Inez M. Rowe. U. S. Weather Bureau. L. A. Culver, jr. Miss Frederica Boerner. Garrett V. List. Charles C. Feagans. Clyde O. Laughner. Rev. Albert A. Young. D. W. Solliday.
Illinois.	Edwards	531	22	39.7	+ 5.5	64	1	20	8	35	1.18	- 1.86	0.32		5	11	2 7	18	ne.	B. F. Michels.
ioleonda loopeston letensboro letensboro letensboro letensboro letensboro letensboro letensboro letensboro lountoarmel lew Burnside	Pope. Vermilion Hamilton Massac. Effingham Wabash. Johnson Jasper Richland Crawford. Edgar. Champaign Saline Gallatin. Vermilion Douglas.	645 720 604 415 450 495 500 715 462 346 599 424 613 484 486 500 700 307 680 644 751	10 28 12 15 20 27 35 11 30 2 3 12 2 18 2 2 6 31 20 29 16 3 0 0 29 11 11 11 11 11 11 11 11 11 11 11 11 11	37. 1 41. 1 40. 0 39. 2 40. 5 36. 5 40. 4 37. 2 38. 7 39. 6 37. 0 38. 3° 37. 0 38. 3° 37. 9	+ 5.2 + 6.6 + 4.1 + 5.0 + 3.2 + 7.0 + 4.5 + 4.8 + 1.9 + 7.6 + 5.8	58				30 27 31 30 33 30 26 29 28 32 26 28 <sup>1</sup> 30 28*	0.64 0.88 1.54 1.84 1.83 1.24 1.68 2.97 0.63 2.54 1.61 1.01 1.41 1.15 1.49 0.45 1.31 1.86 1.16 0.41	- 1, 65 - 1, 65 - 1, 11 - 1, 65 - 0, 88 - 1, 22 - 1, 69 - 0, 95 - 1, 21 - 0, 70 - 1, 41 - 1, 23 - 1, 63 - 0, 75 - 1, 65 - 1, 88 - 1, 91 - 1, 06	0. 15 0. 28 0. 29 0. 47 0. 63 0. 42 0. 53 0. 48 0. 50 0. 24 0. 87 0. 29 0. 39 0. 77 0. 25 0. 46 0. 65 0. 78 0. 19 0. 28	0.2 1.0 5.0 1.4 3.8 2.0 2.3 0.5 2.3 0.5 1.8 2.0 2.3 0.5 7.7 0.5 2.0	4556748558566669655453666457	10 11 10 9 12 8 12 10 17 10 8 10 8 9 11 8 12 10 7	7 3 2 6 1 1 3 6 4 2 10 2 12 3 3 4 4 4 2 12 5 5	14 177 19 16 18 20 13 17 10 19 11 11 19 16 19 19 11 19	nw. se. w. n. ne. nw. ne. nw. nw. nw. nw. sw. sw. sw. sw. sw.	William Chenoweth. State Normal University J. J. Lemon. Dr. L. W. Gordon. Geo. A. Tromly. W. L. Hanna. Dr. D. Lawrence. S. F. Hoskinson. Thos. W. Biggerstaffe. Henry H. Humma. J. C. Spitler. Mrs. H. M. Phillips. Thomas H. McCabe. J. M. Hicks. John T. Ratcliff. Duane Shaw. H. P. Twyman. H. A. Burr. W. H. Thornberry. Mrs. Mary O. Spivey. H. J. Sconce. Joseph O'Neal. University of Illinois.
enver Dam erea landville owling Green urnside lithoun stilettsburg arlington dmonton ubank almouth armers rankfort rankfort rankflin reensburg gard igh Bridge opkinsville vington ckson sitchfield sexington oretto ouisa ouisville ! Do 3 anchester avsville diddlesboro ount Sterling	Jefferson Nelson Lee Ohio Madison Ballard Warren Pulaski McLean Boyd Hopkins McLean Boyd Hopkins Mctalfe Pulaski Pendleton Rowan Franklin Simpson Green Perry Jessamine Christian Breckenridge Breathitt Grayson Lawrence Jefferson Lawrence Jefferson Ldo Clay Mason Bell Montgomery	700 637 650 441 1,070 1,445 500 773 397 544 370 608 560 691 581 762 524 1,128 524 1,128	12 16 9 10 12 32 24 22 10 24 22 19 24 6 22 19 21 10 10 11 17 15 4 17 25 16 26 27 28 29 21 21 21 21 21 21 21 21 21 21	39, 0 38, 0 38, 0 40, 6 40, 0 41, 4 39, 6 41, 6 40, 2 39, 4 41, 0 39, 4 41, 0 39, 8 39, 8 39, 8 39, 8 39, 8 39, 8 39, 8 39, 8 39, 8 39, 8	+ 6.2 + 3.3 + 3.4 + 4.6 + 4.6 + 1.3 + 3.3 + 1.0 + 1.8 + 1.8 + 1.0 + 1.0	70 64 66 66 66 68 70 68 65 67 66 66 64 67 66 67 67	2 1 3 1 1 1 1 1 1 1 1 1 1 2 2 1 1 2 2 1 1 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 2 1	11 15 15 12 16 14 20 0 15 18 18 13 13 18 17 15 15 16 16 12 18 16 16 12 18 16 16 16 16 16 16 16 16 16 16 16 16 16	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	42 33 44 43 32 25 33 42 44 38 30 30 31 32 37 33 37 38 36 37 38 36	1. 85 3. 30 3. 30 3. 30 4. 90 5. 1. 90 5. 1. 63 5. 2. 40 5. 2. 16 5. 2. 2. 16 5. 2. 2. 16 5. 2. 2. 2. 16 5. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	- 2. 52 - 1. 95 - 0. 81 - 0. 30 - 1. 82 - 0. 40 - 2. 32 - 1. 21 - 1. 65 - 1. 75 - 2. 39 - 1. 06 - 0. 25 - 0. 20 - 1. 41 - 0. 98 - 2. 76 - 1. 94 - 2. 52 - 0. 58 - 0. 68 - 2. 52 - 0. 68 - 2. 52 - 0. 68 - 0. 39 - 0. 39 - 0. 30 - 0. 30 - 0. 39 - 0. 30 - 0. 39 - 0. 30 - 0. 39 - 0. 30 - 0. 39 - 0. 30 - 0. 30 - 0. 39 - 0. 30 - 0. 39 - 0. 30 - 0. 39 - 0. 39 - 0. 30 - 0. 39 - 0. 30 - 0. 39 - 0. 39 - 0. 39 - 0. 39 - 0. 39 - 0. 39 - 0. 30 - 0. 39 - 0. 30 - 0. 3	0.61 1.29 1.10 0.55 0.81 0.65 0.73 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.7 3.0 4.0 3.4 4.5 6.1 T. 6.6 T. 1.5 2.1 0.5 0.5 T. T. T. 0.2 0.0 1.0 1.5 1.5 1.0 0.2 1.0 1.5 1.5 1.0 1.5 1.5 1.0 1.5 1.5 1.0 1.5 1.5 1.0 1.5 1.5 1.0 1.5 1.5 1.0 1.5 1.5 1.5 1.0 1.5 1.5 1.0 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	4 5 10 6 9 7 9 7 11 8 7 10 7 8 5 7 9 9 5 8 8 6 8 8 7 4 4 4 6 8 8 7 8 8 7 8 8 8 7 8 8 8 7 8 8 8 8 7 8	14 12 8 9 12 13 11 9 12 13 8 10 4 4 11 10 6 6 10  11 10 6 11 11 10 8 8	7 6 9 5 5 5 2 4 4 110 0 8 3 3 8 1 5 5 13 2 2 6 6 6 3 3 7 5 5 5 5	19 16 12 19 20 18 15 19 17 16 18	e. nw. w. s. nw. ne. s. nw. n. m. m. w. ne. n. s.	W. W. Hicks. C. E. Barrett. T. S. Talbott. G. W. Cann. W. T. Austin. C. F. Rumold. E. W. Horr. Mrs. L. G. Causey. K. W. Massey. W. A. Taylor. Mrs. Mertie M. Bruns. Brick Southworth. Miss Lee Ray. Mrs. Katie Payne. J. V. Oldham. Lee Craycraft. Mary J. Roberts. J. E. Newman. Mrs. Bettie K. H. Alcorn Kelly E. Watts. Miss Lulu Wood, W. F. Randle. T. J. Turner. W. J. Piggott. John E. Stone. U. S. Weather Bureau. Loretto Academy. Lucien S. Johnson. U. S. Weather Bureau. W. I. Hunt. Mrs. Geo. P. Hatton. Mrs. Mary D. Marsh. B. H. Perkins. James O'Connell.
wensboro	Daviess	479 341 926 777	16 24 5 21 17 15		+ 4.6 + 3.1 + 4.1 + 5.0	66 65 61	1 2 1 5	19 17 15 15	9 8 9 28	28 29 33 30	1.61 3.26 4.06 2.55	- 1.41 - 2.23 - 0.40 - 1.49 - 1.19 - 0.79 - 1.44	0.63 0.45 1.20 1.15 0.80 0.42	2.0 3.0 T. T.	7 6 7 7 5 8	9 6 7	6  7 2 6		ne.	Henry S. Berry. S. A. Fowler. I. M. Williams. J. W. Crooke. Bethlehem Academy. E. B. Wilson.

TABLE 1.—Climatological data for December, 1913. District No. 3—Continued.

			year	Tem	perature	, in	degre	es Fal	renh	neit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.		Observers.
Tentucky-Continued.									-											11001-1
aylorsville VeeksburyVilliamsburgVilliamstown	Spencer	489 1, 216 939 943	11 0 17 11	41.0	+ 3.5 + 2.2 + 4.6	61 67 65 61	6 6 1†	17 18 15 15	9 8 10 8†	30 34 38 31	2, 79 4, 69 3, 73 2, 49	- 1.50 + 0.28 - 0.91	0.75 1.40 1.00 0.79	0.7 5.2 T. 3.0	8 10 8 7	15 10 11	3 8 7 8	20 8 14 12	n. s. s.	E. D. Bourne. O. A. Lund. N. C. Jones. Miss Rose Carter.
Tennessee.																				
shwood	Maury	725	40	41.8	+ 0.8 + 1.9	68	2	17	9	37	2. 45	- 1.51	0.80	T.	8	9	5	17	n.	Mrs. Joseph W. Flemin
enton irds Bridge	Polk Greene	880	29	43.4	+ 1.9	66	2	17	8†	39	4.98 1.87	+ 0.76	2.00 1.00		8	8	13	10 17	n. w.	George L. Williams. David B. George.
luff City yrdstown	Sullivan		18	42.0	+ 3.2	65	1†	15	9	32	1.93	-1.24 $-2.32$	0.87	1.0	6	13	9	14	e. n.	Walter C. Massengill. John Lacy.
rthage	Smith	500	21 30	43.0	+ 3.2 + 3.3	65 69 65	1+	16	9	32 31	2,60	-1.29	0.65	т.	11	12	1	18	nw.	Earl. C. Pickering.
dar Hill	Robertson	625 494	15 10	40.4	+ 0.9	65	1†	16	9	31	2.51	- 1.42 - 2.36	0.65	Т.	11 7	10	9	12 24	n. n.	J. Frank. Ruffin. Charles M. Anderson.
narleston	Bradley	709 808	29	44 2	+ 1.6	65	i	23	8	28	6,06	+ 1.08	1. 20 1. 35	0.2	13	14	13	17 11	n. ne.	John T. Weeks. U. S. Weather Bureau.
arksville	Montgomery	500	53	42.0	+ 2.6	69	1	19	9	34	2.30	- 2.13	0.70	2.0	11	12	6	13	n.	Dr. James A. Lyon.
intonossville	Anderson	800 1,895	29	40.6		66	5	13	9	41	3, 88	- 0.58	1.50	0.5	13	11	1	19	SW.	H. C. Slover. J. E. Converse.
andridge	Jefferson		18								3.04		1.20		7 16	13	0	18	e. nw.	James E. Swann.
ecaturlckson	Meigs Dickson	850 800	20	41.6	+2.3 + 3.4	66	2 2 2	15 16	10	38	2.29	+ 0.17 - 1.78	2.06	T. T.	7	13 13	10	8 15	n.	J. Worth Lillard. Nathan R. Sugg.
over unlap	Stewart	500 726	17	42.0 43.6	+ 2.8	72 68	2	16 16	10	38	1.77	- 2.63	0.67	3.0	5 9	10	5 9	16 13	n.	Asa M. Tippit. S. Bradford Boyd.
lizabethton	Carter	1,575	22								1.33	- 1.88	0.45		6	11	0	20	0.	Charles Boyd.
rasmuslorence	Cumberland Rutherford	1,850 560	16	39.6	+ 4.1 + 1.8	67	5	20	8	37	2.70	- 2.67 - 1.42	0.70	0.2 T.	11 10	10	12 5 3 2 5	12	98 W.	Mrs. Sara E. Ashley. Erastus P. Bell.
ranklin	Williamson	648	31 25	41.4	+ 1.7	68	î	18	9	29	3.02	- 1.56	0.94		8	11	3	17		Young M. Rizer.
alls Hillohenwald	Rutherford	983	30	42.9	+ 3.4	71	1	17	10	35	2. 10	- 2.66 - 0.69	0.50	T.	9	12	5	20 14	s. ne.	Edward F. Wright. Mrs. Mary Lutzelman.
on City	-Lawrence	600	18	42.4		68	2	14	9	38	2, 68	- 2,88	1.52	T.	5	7	15	9	nw.	Capt. H. Paul Seavy.
fferson Cityhnson City	Jefferson Washington	1,620	20 29	40.0	+ 2.5	66	6	17	10†		3.38	- 1.51	1.17 0.80	T.	5	13	7 7	11	w.	Calvin C. Maddox. Ward Crosby.
hnsonvilleingston	Humphreys	364	29	42.1	+ 2.7	69	2	14	9	38	2.77	-1.43 + 0.24	0.67 1.58	1.0 T.	12 10	12	7 0	15 19	n. n.	Miss Sallie B. Matthew Henry Crumbliss.
noxville	Knox	977	42	42.8	+ 3.1	63	2	21	8	. 28	3.59	- 0.57	1.44	T.	11	9	10	12	ne.	U. S. Weather Bureau.
ebanonewisburg	Wilson Marshall	522 727	19	42.6	+ 1.2	66	2 2	16 14	9	36	2.68 2.79	- 1.53	0.88	T. T.	11	12 12	6	17	nw. n.	H. Logan Fields. Dr. Robert D. Crutcher
berty	DeKalb	672	16								2.27	- 1.28	0.80		8	10	0	21	8.	Bratten Evans.
oudonynnville	Giles	816 770	22 26	41.0	+ 1.9	65	2 2	16 19	10	38	3.99	- 0.05 - 1.53	1.53	T. 0	9 7	10	9	18 12	w. n.	Robert W. Clark. Col. James H. Burrow.
cGheecMinnville	Monroe	1,038	32	42.9		70	2†	15	9†	41	4.04 1.90		1.40	T.	9	17	11	14	e. n.	Miss Alice L. Headrick Horace H. Stiles.
ountain City	Johnson	2,486	16	38.4	+ 4.4	72	6	8	10	44	2.28	- 1.54	0.63	2.0	7	10	10	11		Edward E. Barry.
ash ville ewport	Davidson Cocke	654 1, 280	42 23	42.6	+ 1.5	67	1	21	9	28	2.45	- 1.37 - 1.37	0.88	T.	11 8	10	3	18 18	ne. w.	U. S. Weather Bureau. Dr. Charles T. Burnett
ew River	Scott	1, 215	5					10			3. 14		1.07	0.5	6	14	0	17	W.	Burl W. Buttram.
almetto	Bedford Decatur	770 387	23 17	42.0		68	12	16	10	38	2.40 2.59	- 2.07 - 2.53	0.69	2.0	6	10 12	6 10	15	n.	Mrs. Ross Woods. Oliver C. Kirksey.
inewoodogersville	Hickman	1,150	7 29			60		16	10	38	2 12	0.20	1.00	Т.	11	14		10	6.	Miss Carrie Cash. Fred Beal.
ugby	Morgan	1,410	24	42.0 39.2	+ 4.3	68	5	7	9	48	3.04	- 0.39 - 1.32	0.83	2.0	7	9	8	14	n.	Samuel G. Wilson.
avannah	Hardin	442	30	44.3	+ 2.4	72 65	6	18 14	10	38	3.41	- 1.20	0.68	2.5	8	8	9	14 20	n. sw.	W. H. Carrington. Herbert O. Eckel.
wanee	Franklin	2,000	19	40.7	+ 2.5	61	6	16	8	25	1.67	- 3.08	0.53	1.0	6	10	5 5 13	16	e.	Univ. of the South.
partapringville	White	920 377	7	42.0	+ 2.6	67	2	15 14	9†	39	2.21	- 3.47	0.20	T. 2.0	6	7 14	2	11 15	W. W.	Ernest H. Hull. Hudnall A. Boden.
azewellullahoma	Claiborne	1,350 1,075	16 26	38.8	+ 2.8	67 65	5	12 17	10†	42 34	3.69 2.41	- 0.80 - 2.90	1.23	T.	7 9	11	5 12	15 10	ne.	J. Caloway Carr. Reuben T. Moore.
alling	White	909	9								1.74		0,30	T.	8	11	5 14	15	W.	John K. Roberts.
VaynesboroVildersville	Wayne Henderson	753 <b>5</b> 00	28 17		+ 1.9 + 3.1	69 70	6	15	9	36	3.84 2.86	- 0.47 - 2.04	1.06	2.5	9	7 9	9	10 13	n. n.	Dr. Harry C. Boyd. William R. Wilson.
orshamukon.	SumnerLincoln	550 850							9	30	2.79	- 2.04 - 2.80 - 2.19	0.88	T.	9 7	14	9	17 12	W.	James G. Elizer. William P. Watson.
	Lincoln	830	11	12.0	+ 2.2	67	1	17	9	30	2.91	- 2.19	1.20	*****		10	9	12	24.	William 1. Watson.
Alabama,										-										
ridgeportecatur	Jackson Morgan	660 573	13	49 7	+ 1.4	67	1	22	9+	33	3.48	- 0.42	1.01	T.	10					R. L. Moore. A. H. Irons.
lorence	Lauderdale	620	29	44.2	+ 1.5	71	î	17	9	39	3.12	- 1.33 - 1.12	0.86	T.	8	12	3	16	ne.	Cyrus A. Ashcraft.
untersvilleadison.	Madison	580 573	19	44.50	+ 2.2	66	1	22	9	25h	5.59		2.55	T.	12	12	14	5	n.	L. S. Long. Edward Humphreys.
iverton	Colbert	360	16	38.1	- 2.2	60	13	17	10	39	3.23	- 2.43	1.10	T.	9 8					James F. Long. H. A. Caldwell.
eottsboro	Jackson	652 488	30	43.2	+ 3.0 + 0.5	68 66	1	17 22	10	33	3.43	- 0.86 - 1.06	1.35 0.83	0	11	14		14	w.	Samuel Moore.
Georgia.																				
ineral Bluff	Fannin	1,571		45.4		70	1	12	9	40	3.04		1.82	0	6	15	10	6		
North Carolina.																				
Itapass	Mitchell	2,629		37.8		66	6	12	10	41	2.60		1.53	5.2	3	14	11	6	n.	Atlapass Inn.
ndrews	Cherokee	1,800	3	42.4		70	6	11	9†	44	3.22		0.92	0	11	10	13	8	SW.	J. D. Link. U. S. Weather Bureau.
shevilleanners Elk	Buncombe	2,255 3,750	34	35.8	+ 2.6	68 65	6	16	10		2.52 3.15	- 1.54	0.55	T. 4.5	10	14	8	9 12	nw.	T. L. Lowe.
lantyrelowing Rock	Transvlvania	1,900 4,090	1								5.69		1.38	0	7 7					J. E. Davidson. E. G. Underdown.
revard	Transvivania	2,230	12						****											Prof. C. H. Trowbridge.
ryson Cityane River	Swain.	2,000 2,700	25								3.92 2.28	- 0.47	0.82	2.0	12					D. K. Collins. Hiram A. Proffitt.
ullowhee	Jackson	2,100	3	41.6		73	6	9	10	51	3.00		0.77	T.	9	10	5	16	nw.	Frank H. Brown.
llijay	Macon Henderson	2,500 2,167									3.57	+ 0.06	0.90	T.	11	14				Chas. G. Miney. T. W. Valentine.

TABLE 1.—Climatological data for December, 1913. District No. 3—Continued.

			years	Temp	erature	, in o	legre	es Fal	nreni	heit.	Prec	cipitation	, in in	ches.	days,		Sky		direc-	18
Stations.	Counties.	Elevation, feet.	Length of record.	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	of rainy	Number of clear	Number of part-	00	ing wind tion.	Observers.
North Carolina-Contd.	,																			
Highlands.  Hot Springs lefferson Marshall Murphy Rock House Transom Waynesville	Macon	3,850 1,326 2,900 1,646 1,614 3,100 2,600 2,792	23 15 6 11 37 21 1	38.7 40.0h	+ 3.9 + 2.0 + 2.5 + 2.0 + 1.6	67 74 65 63 67	5 6 5 5	11 16 12 14 14	8 10 8 10 8	35 38 41 36 26	7. 23 1. 61 4. 34 2. 10 3. 63 6. 40 3. 48 3. 32	+ 0.37 - 0.75 - 1.57 - 0.85 - 0.48	1.84 0.50 1.91 0.94 1.79 1.39 0.98	0.5 T. 6.0 T. T. 2.0 T.	9 10 8 6	9 11 9 11 12	13 18 0		nw. e. w. nw.	T. G. Harbison. P. A. Garner. Prof. E. J. Johnson. M. L. Church. Miss Victoria Mingus. Barry C. Hawkins. S. M. Transou. Mrs. Chas. E. Quinlan.
Virginia.																				
Blacksburg Burkes Garden Elik Knob Emery Ivanhoe ** Max Meadows Mendota Mountain Lake Badford Speers Ferry W ytheville	Montgomery Tazewell Lee Washington Wythe do Washington Giles Montgomery Scott. Wythe	2,170 3,250 3,243 2,094 2,028 2,028 1,350 4,348 1,773 1,221 2,293	22 18 10 1 9 17 4 3 4 17 20	37.0 35.8 36.4 35.0	+ 3.1 + 2.9 + 5.1 + 1.6	66 61 64 67 66 64 64	6 6 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	- 11 - 3 12 13 14 9 - 5	8 27 8 9† 8† 8 8	34 38 29 39 30 42 43	2.44 3.00 3.80 1.20 3.02 2.17 2.48 1.90 5.04 3.48 2.58	- 0.18 - 0.72 - 0.69 - 0.79 - 1.11 - 1.16	0.82 1.05 1.55 0.40 0.80 0.78 0.95 0.90 1.20 1.10 0.91	0.5 11.0 T. 0 1.0 5.0 0 5.0	6 7 10 7 10 6 7 4 4 6	12 12 14 15 15 16 18	3 6 5	13 10 10		Agricultural Exper. Station C. H. Greever. Henry Nicoll. J. E. Weaver. Miss Alice G. Jewett. James M. Graham. Frank M. Barker. H. E. Dorland. Arthur Roberts. Miss L. E. Venable. U. S. Weather Bureau.

\*, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

T. Precipitation is less than 0.01 inch rain or melted snow

Table 2.—Daily precipitation for December, 1913. District No. 3, Ohio Valley.

Gt-ti-ma	Watershed														1	Day	of mo	onth.														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
New York.																		-														
	Allegany							. 40	. 20		. 01								. 15			. 05	.02	. 75								
ean	do							. 29	33	T		.12	т.						T.	.08			.24		. 55		. 62	T.				****
																				-												
Pennsylvania.																			1			1										
ерро	Ohio	.04 T.						.35 .55 .46	. 04		****										T.	. 15		. 90		. 76						
ldwin	Allegheny	T.	. 05	·	· m		. 05	. 55	. 10	T.	T.	. 05							T.			.04	06	. 75	85	. 10	.80	.02				
aver Dam	Ohiodo	. 04	. 05	T.	1.			.37	. 13	.01		. 02			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					T.		. 03	.02	. 16	.51	1.	. 95	T.			T.	
ookville	Ailegheny		. 03	. 03				.06	. 04		. 04		. 03											65			0.7			T.		
lifornia	Monongahela	. 02						. 61										****	m			. 02		. 49 T. . 87 . 20		. 02		(70)	. 02	T.	0000	
eat Haven	Allegheny	. 03 T.	08	T .04				55	16	12	T.	11	T						1.		1.	.30 T.	. 08	T.	.53	T.	.72	T.				
vsville	Ohio	. 05	. 00	T. T. T. T.				.55 .52 .76 .41 .54	T.	.12 T.	T.											. 11	T.	.87	T.	.37	. 13					
nfluence	You'ogn'ny.	.06	. 08	T.	T.			. 76	. 25	. 08		. 08	T.							70			T.	. 20	. 13		. 83	. 05				
raopolis	Ohiodo	. 04	. 03	T.	T.	****		. 41 54	21	.01		.01					****			T	****	.07	.02	. 25	53	****	1. 15	02	****	T	T.	****
rry Station	Alleghenv		. 04	4.				.70	. 09	.01	T.	.01										T.	. 25	. 76	. 53	1.40						
inboro	do	. 05		. 01			T.	. 56	. 30			. 05					T.		. 05			. 12		. 19	. 07		. 40	· · · · ·				
	Ohio	. 04	. 09	.02	T.			.29	. 07	. 03		T.								T.		T.	.20				. 95	T.	• • • • •			
anklin	Allegheny	. 05	T.	. 02	T.			. 61	. 22	T.		T.					1	1				.04		. 17	. 40	T.	1.09					T.
eensboro [ ]	do Monongahela	. 06	.07	. 02	T.			96	. 25	. 08		. 07							· · · ·				. 20		. 41		. 67	T.				
	You'ogh'ny. Ohio	. 07	.01	T		T.	T	. 55	. 09	T.	. 02	. 04							T.	T		. 07	. 19 T.	. 39	. 05		1.28					
ove City	do	. 12	.01 T. T.				T.	. 26	. 10		T.	. 08										. 01		. 25	.01	. 02	. 41					
rrs Island Dam	Allegheny	. 03	. 02	T.				. 36	. 30	. 01		T.	T.						T.	T.		. 02	. 04	. 21	. 42	T.	1.20	.01				
diana	do Monongahela	. 08						. 95	. 25 T	T.	. 05 T.	.18										. 16	T	. 60	.01	. 15	. 52					
hnstown	Monongahela Allegheny Monongahela Allegheny	. 09	.01	T.				1. 10	.09		. 08	. 03	****			****						. 07		. 47		. 45	. 40					
ek No. 4	Monongahela	. 04	.01	. 01				. 27	. 18	T.												T.	. 18	.34	. 22		1.13	T.				
		. 05						. 68	. 13	T.		. 03								T			. 35	.74	50	. 35	. 76	01			· de	Tr.
	Ohio	. 11		T.			T.	.60	. 08	1,		T.										. 03		. 50	T.	. 10	. 56					
rkers Landing     .	Allegheny	. 01	. 15					. 38	. 20	. 04		. 04											. 04	.01	. 52		1,00	. 02			T.	
	Ohio	. 03		T.			. 10	. 48	. 05		.01	T.							T.		T.			. 70	T.	. 65	. 57				Т.	
	Allegheny	. 08		. 03			02	. 96	. 08			. 07							1.			- 1		.25	.02	. 05	.20					
Itsburg	do	. 02	T.	T.				. 48	. 14	. 03		. 06											. 01	. 12	. 57	T.	1.26	. 02				
	Ohio	. 01	. 07	T.	T.			. 13	. 08	.01		T.							T.			. 08	. 01	1.11	. 29	45	. 47	T.				
	You'ogh'ny.	. 16		. 05				. 42	. 30	.01	.21	.02					****			T.		. 03	. 05	. 20	T.	. 90	1.62	T.	*****			
niontown	Allegheny Monongahela	T.	T.	T.				.58	.30		. 23	. 15										. 20	.24	. 43		1.50	T.					
indergrift	Allegheny	, 02						. 61			T.								94			. 01		. 68		. 06	1.09					
est Newton	You'ogh'ny.	.05	. 04	T.	T	T		. 10	. 40	T.	T.								T.		T.	· 470	.20	. 10	.50	T.	1, 12					T.
Maryland.	2 04 081 119 1					-			-																							
	You'ogh'ny.	10		05				71	. 70		. 10											. 15		. 30			. 30					
antsville	do			. 0.5				1.00	.30										. 05					. 41		. 50	. 20					
kland	do	. 15	. 06	. 05				.54	. 62		. 04	, 06										. 10	. 15	. 35	. 04	. 50	. 30					
West Virginia.																																
	G. Kanawha								. 05										. 17			. 05		. 27	. 07		1. 25				10	
	Ohio																									08	.20				. 10	.20
ens Runuefield	G. Kanawha	60						. 07	. 30										. 03			****		. 10		. 75	.20					
andonville	Monongahela	. 05	. 30	.77				. 80											. 48					. 58			. 75					
iekhannon	do	. 16		T.				. 90	. 15													T.	. 16	. 40	04	. 80	.20	. 10				T.
ntral Station	Monongahela .do. L. Kanawha M'dle Is. C'k G. Kanawha Monongahela .do. L. Kanawha Sand Creek. Monongahela Big Sandy. L. Kanawha Big Sandy L. Kanawha L. Kanawha L. Kanawha L. Kanawha Monongahela .do. L. Kanawha Monongahela	* 99	.00	*	*	*	.71	*	*	*	*	*	*	*	12	*	*		*	*		.30	*	*	*	1.00	.50				T.	T.
arleston	G. Kanawha	. 46	. 08					. 52	. 26	.02									. 02			T.	. 08	. 08	.08	. 12	1, 12	. 04				
eat Bridge	Monongahela	. 08	. 30	. 35	. 16			T.	.71	T.		T.							. 16				T.	. 20	. 40	T.	1.00	.20	T.			
rtland	L. Kanawha	. 35	. 19					, 55	. 26	T.									. 15				. 30	.21	. 22	T.	. 97					
ba	Sand Creek	. 46		T.				. 86	. 10									T.		T.		. 17		. 60		. 52	.77					. 12
vis	Monongahela	T.	. 25	. 05	. 02			1. 14	. 40	. 20		. 05	T.						. 65				T.	.30	T.	. 18	20	.00				
oaneizabeth	L. Kanawha	. 28				****		1,00	. 85	.02														. 20	. 63	. 15	1.05					
khorn	Big Sandy	. 62						. 52	T.													T.		. 11		. 17	T.		T.			T.
kinsirmont []	Monongahela	. 14	T.	.06	00		.21	1. 12	. 14	T.	T.	T.							.07			.17	19	. 18	30	. 96	1 36	T.			T.	. 08
enville	L Kanawha	. 12	62	1.	.02			-74	.32	. 02	****	1.	****	****	****	****	****	****	1.		****	1.	. 12	.00	. 00	.23	1. 37	.17		1		
rafton reen Sulphur Spgs	Monongahela	. 20		. 15				. 90	. 10										. 15					. 75		. 55	. 68					
een Sulphur Spgs	G. Kanawha	1.06		T.				. 45	. 08										700			.01	75	. 14	16	. 19	. 30	00		T.		. 05
nton	do	. 95	. 20	.67				. 70	. 28										. 15			T.		T.	. 10	*	1. 28					
intington	L. Kanawha Monongahela G. Kanawhado do Ohlo G. Kanawha	.72						1.04	. 36	. 02														. 34	. 02	. 16	1. 14					
wisburg	G. Kanawha	. 80	T.	T.				.39	T.	· m												T.		. 26		. 68	. 28					. 08 T.
st Creekdison	Monongahela G. Kanawha	.79	I.				T	. 80	. 12	I.									.02			. 20		. 01	. 07	T.	1.00	5		. 10	)	.10
nnington	Monongahela	. 08		. 01				.77	.21										. 03			. 32	. 04	. 64	T.	. 60	. 29					
rlinton	G. Kanawha	. 40	.30					. 50	. 10													*		. 30		1.00	. 10					. 05
	Monongahela Ohio							. 10	. 15		T.											67	. 05	. 40	****	- 05						
oundsville w Cumberland	do	. 10					T.	. 60	T.		T.									****		T.		.80	T.	70	T	1				1
w Martinsville	do	. 20						.75											. 05			. 32		. 76		. 78	. 58					/FD
ittallburg	G. Kanawha	. 90	T.	T.				*	-00	*	*	*	*					00				. 82		.20		.20	.20			T.		T.
rkersburg	Monongahela	. 10	. 15	.10			. 40	10	.30									. 03				. 30		.20	.20	.35	. 68	5				. 00
ilippi	Monongahela	. 10	.01	. 09				. 83	. 22		T.								. 05			.01	. 13	.36	. 03	- 66	. 85	2	. 01	1		T.
ckens	do	.11	T.					1.32	.74										. 15				T.	80	14	****	1 90	2 7				T.
int Pleasant []	Ohio	. 08		• • • •				73	.07	. 02		****	****				*	*	*	*	*	*	*	*	.70	310	N:	1			1	
	do do	1. 25					. 25	.20							. 10		. 80												0000			. 10
inceton								1 50.0	1 10 0	NI		1	1		1		1		0.5		1							100			4	
inceton bertsburg	do Monongahela G Kanawha	. 73	. 08					.70	. 18							****			00				90	- 40	.08	T.	. 90	8				-

Table 2.—Daily precipitation for December, 1918. District No. 3—Continued.

Stations.	Watershed						1	-	1						-	- ay	of mo	24 021.			1		-	-	1	-		1			-	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
est Virginia—Con.																																
nithfield	Fish'g Cr'k			. 02	. 11			. 52	. 43	.30		T.							. 15				. 19	. 68	. 15	. 27	. 70					
encer	L. Kanawha G. Kanawha	. 60	. 35			T.		.57	. 14		T.								700			T.	T.	. 22			1.04					
rra Alta   [	Monongahela	.41	. 10	****	****			****	. 80	. 10		****	****			****		****	Т.													
ion	G. Kanawha	.90	. 10													****						T.		. 10			T.					
ellsburgeston []	Ohio Monongahela	.10	.10	T.	.02			. 70	. 10	.06	T.								0.4		1	. 15	18	. 12	. 22	. 20	1. 20			****		
heeling	Ohio	. 05	. 05	T.	****			.35	. 35	T.		T.										. 04	. 10	. 33	. 40		. 95					
illiamson [[	Big Sandy	. 84					****	1.08	. 20	****		****		****			• • • • •		T.			T.	. 04	. 10	. 12	.06	1.16	. 04		. 02		
Ohio.	011	0.5							0.5															-			00					
nesvillehland	Ohio Muskingum.	.40	T.	T.	****		T.	1.06	.01		T.	****	****	****				T.	T.			. 13		. 88		.50	.60	1.50		****		****
ngorville	do	.41					T.	.47	. 05													. 37		. 37		. 10	. 20					
llefontaine verlv			. 16		.01		.09	40	99	T.	****								.01	****		.09	08	. 54	.03	. 07	77	T		****	****	
adensburg	do																															
illiant		T.				****	T.	. 68	T.										****				. 30			. 35	. 20					****
diz mbridge	Muskingum.	-20					1.	.71	T.					****				****			. 09	.07		.77	1.	. 44	. 50					
mp Dennison		. 15	****	T.			. 14	. 23	T									-				. 36		. 52	T.	. 24	.02					
nal Dover							.17	.32	.09		T.	****	****	****	****	****		****	****			.12		.52		. 45		****	****	****	****	****
rdington	Scioto	. 15		T.				. 35	T.									. 40						. 22			****					
illicothe	Ohio	.07	.38	T.		****	.15	. 24	711		****	****	****	****		****					.02	.01		. 69		.36						T.
cleville	Scioto	.30					1.10	. 22	T.									. 03			. 02	.27	T.	. 76		. 22						1.
arington	Ohio		T.				T.	. 65	. 05	. 05	T.							T.				. 20	. 10	. 80		. 55	.70					
lumbianalumbus	Scioto	. 20				***	. 22	. 23	.06 T.	****	****	****	****		****	****		T.			.01	. 06			. 07 T.	.18	.74 T.	T.				
shocton	Muskingum.	. 25						. 24	. 15								****					. 21	. 05	.30	. 27	. 05	. 58		****			
vton (1)	Great Miami					****	.07		T.							. 02		T.			. 07	. 14		. 19	T.	. 11				****		***
laware	Scioto	.02					. 07	. 23	.01								.01	. oi	****	****		. 22	T.	. 22			.02		****			****
emos	Ohio	. 14	. 02	T.				. 78	.02				****			****		T.				. 15		. 81	T.	. 63	. 40					
ennisonankfort	Muskingum. Scioto	. 11			****			. 46									****					. 06		. 59		. 34			****		. 06	
Ilipolis	Ohio		****			****		.60	. 13								****				****			.58	. 05	****	1.20		****			
rrettsville	Mahoning	. 15					.02		. 27													. 17		.37	. 01	. 07	.36					
anvilleeen	Muskingum. Ohio	T.				***	. 43	. 15	.03 T.		****	****	****			****			****	****		. 20		. 29		. 12	T.	****	****			T.
een Hill	Muskingum.	. 09				T.	. 05	.17	. 04		T.						****	T.	T.			.07		. 46	T.	. 31	. 16					
enville	Great Miami						. 05				***					****	****	T.				. 15	36	. 13					1000			
aydenville	Ohio	. 45			****		. 20													****		.18		.90		. 40		****				
illsboro	Scioto						10															T.										T.
enton	Ohio Scioto				T.		. 13	. 60 T.												****		1.		. 61	T.	1.17		****				1.
illbuck	Muskingum.			T.	****		T.	. 45	. 12													. 20	T.	. 70	T.	. 45	. 36					
ings Mills	Chio			T	****		T.	. 21	T 14			****		****				****				. 16	. 45	. 32		.32	. 20					
Connelsville	Muskingum.	. 23		. 02			. 10	.36	. 02									T.				. 02		. 40	. 02	1.10	. 24					
arietta	Ohio	. 30	.06	T.				.45											. 02			. 15		. 87	.06	. 50						
arionilfordton	Scioto Muskingum.			1.		****	T.	. 43										1		****		. 22 1. 25		. 41		. 10						111
illigan	Ohio							. 66											T.	****		. 03		. 84		. 55	57				-	
illport	Muskingum.	.10	T				.25	. 21	.10 T	T.			****	****	****			T.	T.		****			. 45 T.	T.	. 24 T.	. 50		T			
S. University	Scioto	. 15							T.											****		.35		. 46		. 2	. 08					
regonia	Little Miami Muskingum,						00	20				****										01			703		1					
ebles		. 59	.01	****		****	. 03	. 44	. 05									1.		****		.08			T.		. 10				1	
nilo (1)	Muskingum.	. 36		T.				. 66	. 02													. 07		. 60	T.	. 12	. 76					
qua    attsburg	Great Miami			***	****		· Tr	90	. 16		***		***									. 25		. 10	T.	20				****	-	
ortsmouth	Ohio	. 60	)				T.	.76											T.			T.			. 20		1.50					T.
ospect												· leves								****				****								
dney						****		. 26	. 09				T.				T.	T.				. 10		. 19	T.	T.	. 04				1	
ringfield	Great Miami	. 25					T.	. 28	T.													. 22		. 27	. 01	.1	1					
mmerfield		. 29			***		****	. 52	. 04					×								. 19		QE		. 50	1					
urman	do					****		. 63	T.													. 13	T.	. 65		- 4	5 . 10					
boso	. Muskingum.	. 36						. 21	. 20	T.				1000								. 24		. 30			. 70					
rbanaarren				T			T.	. 27	. 08		T									****		18		. 15	T.	. 2	3 . 85	2			1	1
averly	Scioto	. 58	T.				T.	10.	100			. la a a a							T.			. 13		. 70		.3	5 .30	)				
avnesville	Little Miami	. 12	2				. 10	.30														. 28		.30		. 2	2 T.	***				1
oosteroungstown	. Mahoning	.32	. 13	T			. 05	. 09	. 04	T.	T.							1000				. 18	. 12	. 16	. 22	. 10	30				-	
nesville		. 2	. 02	T.	T.		. 01	- 40	. 07	. 02	2											. 12	T.	.57	. 16	T.	. 8				1000	
Indiana.													1																			
nderson	W.F., White						. 05	- 02	T.										·					. 23		T.						
oomington																						. 28			.01							-
utlerville	. E. F., White	.10	1				.17	.14	****													. 23		. 46	.02			3		-	1000	
ambridge City II.	. Whitewater.	33	3	1								1				1			1	1		20	1							-1		
olumbus	E.F., White Whitewater.	. 28	****	***		****	. 01	1 . 15	T.							1		567	1			21	Th	. 37	. 01		2					
awfordsville	. Wabash																				.30	)	****	. 29	T.	T.						
elphi	Ohio	.65	T.	***	****		. 05	.12	T.	***				- m		***		·				T.		.20	. 09							
vansvillearmersburg	. Wabash	.18	1.	****	****	****	.12	T.	****	***				1.	1.			T	****		.00	. 15	. 36	43			7 T.					
armland [ ]	W.F., White	.33	3		T.		****	.08	. 04													. 08		. 04			. 10	)	1			
orest Reserve								.07	****													.36 T. T.		. 53		. 4	3 .03	3				
reensburg	do			1		.10		T	****	***							****				1.10	T	10	20	. 18	1.0	5	***				
ickory Hill	W. F., White	1 00			1	1	000	0.4					1			1000			10000	1	1	1	1 . 41	1		10.000	-1	2000		*1 * * *		

Table 2 .- Daily precipitation for December, 1918. District No. 3-Continued.

Stations.	Watershed.			,			,											onth.		-								· ·	1				-
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
ndiana—Contd.																																	
intington	Wabash	.18					. 24	. 12	T.												T.			. 28		T.	. 03						0.
lianapolis	W. F., White						. 13	. 10								T.					. 05		. 03	.14	.01	. 03						T.	0.
	Ohio Wabash	. 46					. 45	. 07													.12	. 02		. 51	T.	.37						****	1.
komo	do	.32		T.				T.								. 03						.12		. 22	.02								0.
fayette	Wabash	. 59					. 10	.10											• • • •		.00	T.		. 13	-11	• • • •			T.			****	0.
dison	Ohio	. 16					. 13	.06	. 03													.37		. 47		. 32	.14						1.
rengo	Wabash		.03				.09	.10													T.			.16		T.						****	0.
uzy	E. F., White						. 05	. 05	T.												T.	.16		.12	T.	.10							0.
	Wabash Ohio		Т.				.06	.15			****											. 22		T.	T. T.	.18							0
unt Vernon	do	. 24					.70		T.						T.							. 35		.10		T.	. 25						1
hville	E. F., White	.31					.12											T.		Т.	. 34	-40		T.	.35	.01							1
nceton	Wabash						.37															. 62	.04	.46		.32							1
	Whitewater. Wabash						.05														. 11	T.		.10	T.	. 10							0
ckville	do	. 40					.08	. 06									T.				.00			.33	T.	.01	T.					****	10
ne	Ohio Wabash	. 28	T.	.03	· · · ·		.38	T.	. 02						T.	T.					T.	. 05		. 56		. 40		1	.02	. 03			1
amonia	Ohio	. 15		. 03		.05	.07	.10	. 00							1.					T.	. 15		.57	. 15							T.	1
ttsburg	E. F., White	. 30					. 23	T.										T.	.06		.30	. 44		.38	.12	. 20							1 2
	do	. 12	.01				. 22											T. T.			T. T.	.46		.36	T.	. 23							1
als II	do	. 99	. 02				. 15		T.									T.				. 48	T.	. 24	T.		. 12						1
re Hautedersburg	Wabash	T.	T.				. 06	.03 T.										. 01		••••	.08			.38	T.	. 01						T.	1
ау	Ohio	. 60	T.					. 05													.20	.05		.25	T.	. 25							1
cennes	Wabash	1.00					.30	.10	T.								T,		T.			. 60		.40	T.	T.	.10						
shington	W. F., White	. 15	.05				. 23	.03													. 14 T.	. 44		.36	.02 T.		.03						
ona Lake	Wabash	. 05		. 02		. 02	. 02	. 14	. 05												T.	. 03		. 23	T.	т.					-		
	W. F., White	. 35				T.	.12	T.													Т.	.11	• • • •	. 29		. 08	. 04						1
Illinois.	Wabash	. 19					. 32	Т.													10	. 27				.30							
	do			T.	T.	.06												T.			. 15	. 44		.08	T.	. 05	T.						
	do	. 17					. 05	T.								T.					. 04			. 28		.10	T.						
ville	Ohio	. 29					. 09			****				T.	T.	T.	T.	.05			.14 T	· m·	. 13	. 22 T.	. 02		T. T.		33			05	5
field	Wabash	. 63			T.			T.								T.		T.			T. T.	T.	T.	.37		. 33	.07		. 09				
a	do	. 11					. 13	T.									. 02				. 05	. 30		. 39									-
conda	Ohio Wabash	. 34	T.	T.			.10	.11													.17			. 53		. 36				4			
cansboro	Ohio	. 50					. 26	T.	T.							T.						T.		.50		.37	. 05		Т.			T.	1
ropolis	Wabash	. 03					. 26	T.								T		.01			.08	т.	T.	1.05		.75				5		.03 T.	
int Carmel	do						.48									1.					.00	.48		.38		T.	.30					1.	
	Ohio						.35										T.				. 29	.07		. 43		.30	.10				2	. 03	
ey II	Wabash	. 39		1.			.08	T.							••••			T.						. 26	T.	. 22	.34						
stine	do						. 20	T										. 03			. 07	. 27	T.	.50	T.	. 03		. 00	5		T.		
	do	.77					.05	.10 T.	T.												. 25			. 42	****	T. T.	. 18						
yville	Ohio						.34											т.			. 25	.40	T.	. 33		. 21			01	1		T.	
	do						. 65								.05									. 51		Т.	. 27			. 20	0		
ellscola	Wabash	.78			T.		.04									1.								. 19	T. T.	T.	T.						
	do		. 01				. 07		T.							T.					.17			. 28		.10							
Kentucky.														-																			
	Cumberland Ohio						. 20	. 40							т.			Т.				.91		40	. 20	. 25	T.		. 26	В	T.	T.	
dstown	Salt	1.29						35															т.	.92			1 - FIN	Min		. 02	5	A .	
ttyville ]]	Kentucky	. 56						. 98	. 22	T.									. 16					.48		T.	1.10	. 12	2 .08	8 . 18	3	.08	8
WA	Green Kentucky						.38	.17											. 02			****		. 89					12		0 .02		
dville	Mississippi						. 29	T.							.01	.01		. 09			T.		. 45			. 65			13	3		T.	1
ling Green	Green Cumberland	. 65	T		• • • •		T.	. 28	. 03						т.	T			.10					.73		.72	. 20	. 08	5 .20	0	8		-
oun	Green						. 43	.02	. 08						T.			.02	A .		T.	. 04		.50					. 17	7 .0	4	T.	
ettsburg	Big Sandy	. 64						.94	.20						T.								. 02	. 40	.08	.06	1.50	)					
ington	Greendo						. 25	.01	.10			****			T.				.05			.04		1.00	****	34	. 18		T.		5	.01	1
ank	Cumberland	. 65						.52	. 10														.30			. 19	.50	3		1	0		
nouth	Licking			. 01			10	300	.06							1						T.		.84		. 10	90	0					
akfort	Kentucky	. 75	. 22			T.	.18	. 46	. 08	T.		****						****				T.		. 90	T.	. 17	.55	8		1.	1.	T.	
ıklin	Green	. 42					. 16	. 05										. 11	T.			.06	. 05	. 66		- 78	8		. 3	0		T.	. 1
ensburg	Kentucky					. 02		1.00	T.	T						****			. 12			.01		1.10	. 57		1.2	1 0	2	- 1	6		
a Bridge	do	. 62	. 20					. 41	.06															.98		.20	0 .8	4		1	0		
kinsville	Cumberland	. 25					. 40	m	/D						. 05			. 10	,					. 45		.46	)		10	0			
ngton	Ohio Kentucky						.58							1.422			1	1.200															- 0
chfield	Green						*	41							- Als			10				1	60			66	0.0	5	2	0		T.	
ington	Kentucky	.37			T.		. 42	.06			(T)	(70)		70				T.		· · · ·	T.	T.	. 16	.75		.96	8 T.		. T.			. T.	
etto	Salt	.70	T.			.02	.37	. 10	. 13	. 02	T.	T.		T.	.02			T.	. 02	T.	T.	T		.96	. 02	16	01.0	6		0	7 T.		-
isville (1)	Ohio	. 03			T.		.39	.01							.02 T.						T.	.01	. 35	.09	T.	.30	6		0	1		. T.	
isville (2)	do	. 75					. 39	. 03							T.						T.	1.00		.00		. 0.	1		. T.				
chester	Kentucky Ohio	. 96	.12			****		. 35	. 03	)			0 4 4 0									T		. 69	. 15	3	0 .8	6.0					
							.14	1, 10										1	1			.11		. 45		. 8	4 . 1	5	0	7 .0	5	. 1!	5
dlesboro	Cumberland	1.05												4	1			1												-			1
dlesboro unt Sterling    ensboro    ucah	Cumberland Licking	1.05						773										****						****									-

Table 2.—Daily precipitation for December, 1913. District No. 3—Continued.

Stations.	Watershed.		(					1	1					1	,	Day	of m	опти					1 1				1	ī	1 1		1	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Kentucky-Contd.																			-													
ichmond	Kentucky		.77					.90	. 11										T.					. 88		. 20	1.15			. 05		
t. John	Salt	.80			T.		T.	.32	T.						T.				T.					. 73		T.	.50			. 20		
cotthelby City	Kentucky	. 67	****			****	. 61	.33				****		****				T.					****	. 42	.02	.30	. 19		Т.			
helbyville	Salt	.90			T.			. 26	. 15																		. 91			T.		
aylorville	do	. 75					.58	.04	. 01						T.							. 02		. 69		. 64	. 06		T.			T.
Villiamsburg	Big Sandy	1.00	. 03				.02	1.40	10						T.	T			05			T .03		65	T.	30	1.05	T				. 12
/illiamstown	Licking		. 79	.04					. 23	. 03												. 03		.73			. 64					
Tennessee.																																
shwood	Tennessee							T.							.42				.10								T.		. 25	. 05		T.
	do	2.00						1.00							.10			T.					. 55						10	. 73		. 25
luff City	do	.58						. 29	.06												.07		.06						. 10	. 10		
yrdstown	Cumberland	.37						.12																.77		.20	. 10			. 33		
	do	. 29					. 02	. 50							.06	. 10	. 02	04	. 19					. 65		. 41	. 26	.04	.16	. 12	T	.01
lina	do	.24						.58	. 04						T.	T.			T.					. 85		.40	.41			.10		
narleston	Tennessee							1.20							.18	.20			. 24	. 14				. 65	.30	.27	.36			.57	.30	. 45
arksville	Cumberland	.26					1.35	.01							. 18			.00	.00				. 21	. 21		. 40	20		.25	. 41		. 03
inton	Tennessee	1.50						1.45								. 02								.32	.03	.06	. 48			.02	T.	
	do						. 15	. 60							.06	. 15	. 05					. 15		. 55	****	.30	. 05		. 55	, 20	.08	00
andridge	do	2.06	.05	.01			.80	. 70							.12	.05		.01						.52		.40	1.00		.05			.02
ekson	Cumberland	.37					. 25								1.12			T.						.76	.50				. 24	. 05		T.
	do	1 70					. 23								T.			.10	10					. 67		40			.37	20		
inlapizabethton	Tennessee	1.70			****		.08		- * * *										T.	****	***			. 00	T.	. 20	45	25	.12	.30	.12	
asmus	Cumberland	.70					T.	. 48							.09	.02		. 03	.14					. 66		.33	.10		.09	.06		
	do	.11					. 48																	. 65					. 10			T.
anklin	do						. 18								T	.08								50		30	.27	. 27		15		
henwald	Tennessee	. 48					.30								.32			. 05	.18					1.00	1.12	.61	. 28					!
on City	do						. 40								. 42			T.					T.			1.52			. 29			
fferson Cityhnson City	do	.74						1.17 T											T			. 08		. 20	.04	. 78					. 15 T	. 10
hnsonville	do						. 26	. 05							.07	. 05								. 53		.32	. 22	T.	.12	. 18	. 01	
	do	1.58	T.					1.25	T.							. 11			. 16					. 42		.05	.38			.24	. 02	. 03
banon	Cumberland	. 25					1.28		T.						.06			.01	.09		T.	Т.	. 03		****	.73	.05	****	.06	- 14		. 12 T.
wisburg	Tennessee						.34								.34				.12				. 16	.71		.84	T.		.21			T.
berty	Cumberland		.10																					. 80	. 35	. 20						
	Tennessee						. 63	. 99															T.	91	****	T. 74	.50		.22	. 37		T. T.
cGhee	do	1.20						1.40											. 13					. 22		T.	. 47					. 03
	Cumberland Tennessee														. 35									. 40	****	. 24	.06		.12			. 03
	Cumberland.	. 63 T.					.17	. 60					****		.03			.17	. 04		.02	.01	.71	. 15		. 35	. 10		.30	. 25		. 20 T.
ewport	Tennessee	. 55						. 25								T.			. 15					. 10	.11		- 70				. 13	
	Cumberiand. Tennessee						. 28	. 65	T.						.60				T.			T.	T.	. 69	****	T.	. 42		10		. 10	T.
rrvville	do	. 53													.23								.36		****	.64		****	. 13			1.
	do																															
ogersville[[	Cumberland.	. 65					T												.01					. 65		24	1.00				. 10	TP
vannah	Tennessee	. 43					. 25								.30				. 48				. 24	. 66		. 68	. 20		.37			
vierville	do	. 67						1.06							. 03				.07					. 28		. 66	. 12			. 20	.02	. 10
wanee	Cumberland.						. 49 T	.20							.16			T	. 05								10		. 05	. 53 T		T
oringville	Tennessee	. 08					. 15	.01							.07	.01		0.5	10					70		64	0.3		37			T.
zewell	do	. 99						R. S. MARCE	. 14							T.			.06					. 30	T.	T.	.91		iii	.06		
allahoma	Cumberland.	. 12					.11	. 26				****			. 35			T.	. 22					. 53		. 53	- 157		1 . 1.1	. 20	T	T.
aynesboro	Tennessee	. 60					. 35	T.							. 32			. 12	. 24				. 44		.37	1.06		T.	.34	T.		T.
ildersville	do	. 17		T.														T.	. 37				. 18	. 65		. 27			1.21	.01		T.
orsham  ukon	Cumberland. Tennessee	. 45			****		. 19	. 05							. 04			T.	. 12			. 04		1. 25	****	. 74	.03		. 28	. 14		
A labama.																																
ridgeport	Tennessee	1.01						. 89								.49			12					. 97		. 24	00			40	. 10	
eatur	do						T.	. 33							. 18	. 28			. 21					. 85		. 55	. 04		. 05	. 24	. 04	T.
orence	do						. 37								. 55			. 09	. 25				. 16	. 70		. 67	T.		.33			T.
untersville	do	2. 55					T.	- 65							1 250		1		9.4					86		0.4	. 00		.05	. 55	. 10	
ottsboro	do	1.35					. 05	. 40							. 23				T.					. 47		. 25	T.		.07	.77		
seumbia[[	do	. 03					. 45	. 23							. 37	. 18			. 35					. 83		. 58	. 12		. 20	. 09		
Georgia.																																
neral Bluff	Tennessee							.09							. 05										. 01	1.82				.07		1.00
North Carolina.																																
tapass	Tennessee				****																					1.53	. 12		T.			. 95
drews	do	. 55		****			. 03	. 65	· · · ·						.01	. 07								. 33		. 47	.01		.02	. 92		.16
sheville	do	. 80		****	****		. 05	. 20	.10			****	****		. 05	****		****		****			.07	. 10	****	. 10	50	****	.06	. 40	.02	15
lantyre	do	1.38						-92								. 08								1.04		1.20					.27	
owing Rock	G. Kanawha																															
revardryson City	rennessee	. 82	.02												76				06	****				36	.04	19	76	00		62	.03	30
ne River	do	.02	. 02					. 85							.03	. 08								. 10	.09	. 55	.10	. 02		. 40	. 05	. 12
ne River	do	.74						. 77							.01	.06			T.					. 15		. 43	T.		T.	. 73	. 08	. 03
lijay	do	. 90	. 02					. 73							. 03	. 05								. 25		.56			. 03	. 88	. 10	. 02
endersonville	do	1,30						1.84							. 10									1.22		1.24			T.	1.18	.30	. 27
	G. Kanawha	20			-	***		20.00	****			****			1 . 10							BBBB	RESE	and the second		- 大田 田田						+ 100

Table 2.—Daily precipitation for December, 1913. District No. 3—Continued.

Gt 41	Waterbad															Day	of m	onth	1.													-
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
North Carolina—Con.																													-			
Marshall	Tennessee	. 40						. 58								. 04						*	*	*	*	*	*	*	*	. 98	. 10	
Rock House	Savannah	1.00	****				. 10	11.69			1	1	1		1.0		1	T.		TT			T.	. 34	.05	1 14	. 29		·m·	1 45	.07	. 21
Franson	G. Kanawha Tennessee	1.39						. 33						***		T								. 40	· · · ·	. 88 T.	. 10			. 22	.06	. 10
Virginia.										1	1	1	1			1.							****	. 19	1.	1.	. 50	****	****	. 55	. 30	Т.
Blacksburg	Kanawha	. 82						. 42	T	T												m		95		70	17					00
Burkes Garden Elk Knob	Tennessee	70	1.05			·m		.37	. 10													T.		. 25		.33	.70					. 20
Emory	do	. 05			.01			. 40		****						Т.		.01	Т.		. 02	. 18	. 18	.14	. 80	. 42	.03		. 03	T.	.08	03
vanhoe	Kanawha	. 80	. 35					. 50	.06	. 05														. 20	. 16	.06	. 78			.06	.08	T.
fendota	reilliessee	. 00						. 48	- 20	£		1	1										10	051	10		0.51					
Mountain Lake	Kanawha																															
peers Ferry	T CHILDSOOP	. 00						.60	. 4U										. 12			- (36)		. 161	. 341	- 081	1. 10			12	1	1

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 3, Ohio Valley.

	]	Pennsy	lvania	٨.							We	st Vir	ginia.											Oh	lo.			
Date.	Green	nville.	Pitts	burgh.	Charl	eston.	Elkh	orn.	Elk	ins.	Glen	ville.	Hunton		More		Park		Who		Can	ton.	Cincin	nnati.	Colum	nbus.	Day	ton.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	48 52 51 44 45	42 44 36 32 31	52 54 52 50 48	46 47 38 37 39	65 57 58 57 60	50 48 48 45 40	54 53 54 53 56	42 42 45 47 35	51 50 48 48 54	44 42 42 35 33	60 53 54 52 51	47 45 45 43 44	58 58 59 55 56	50 45 44 44 36	52 52 53 44 50	45 44 44 35 40	56 54 56 55 53	46 41 42 38 38	55 55 56 55 55 52	49 46 45 38 38	52 54 51 52 49	46 48 40 36 35	60 60 60 56 60	54 52 51 44 41	59 59 53 54 52	50 48 44 37 38	58 60 54 55 54	50 47 48 40 38
6 7 8 9 10	45 51 29 33 36	32 28 17 18 22	49 54 27 32 35	39 22 20 24 26	62 60 59 36 41	41 50 20 24 25	67 68 55 40 41	34 32 14 22 19	60 56 23 30 36	29 18 13 15 14	55 47 37 37 39	45 37 17 11 16	57 54 30 35 41	36 36 18 18 21	55 55 33 30 33	35 32 16 22 24	52 53 27 34 37	34 22 20 10 24	50 54 32 35 36	35 42 19 22 23	44 48 25 33 34	38 19 18 13 26	58 52 33 38 43	46 18 17 24 29	48 47 28 34 37	38 18 18 18 26	53 49 33 35 40	39 15 14 22 26
11 12 13 14 15	34 46 53 51 41	24 12 28 30 18	35 47 52 49 48	27 26 37 36 29	42 50 55 55 55 55	32 25 26 28 30	42 51 52 50 51	31 33 25 27 25	33 48 53 50 52	19 14 18 20 29	38 40 45 57 50	12 11 14 18 24	39 48 52 49 48	28 22 22 22 22 28	34 46 52 48 49	29 24 35 32 26	37 48 54 51 48	27 23 26 27 32	38 51 56 51 50	31 22 26 26 25	34 47 53 51 44	24 24 31 30 22	42 54 55 60 52	32 28 31 36 33	36 51 52 53 40	24 26 33 33 31	38 50 51 54 40	27 28 33 36 30
16 17 18 19	41	30 31 29 21 16	43 43 39 40 46	36 34 31 28 28	56 56 54 44 55	33 35 38 24 30	54 55 51 52 55	29 32 40 21 22	51 49 45 44 50	26 25 30 17 19	58 50 45 50 58	21 24 32 17 27	54 52 39 40 53	27 28 30 22 22	52 48 46 40	34 32 30 25	51 46 43 40 48	31 27 33 22 23	47 41 38 45 47	25 31 34 24 21	40 37 35 40 40	33 32 30 22 23	46 50 43 44 51	34 35 31 26 30	45 43 36 39 44	32 32 30 26 29	44 44 38 42 47	30 32 36 26 20
21 22 23 24 25	35 34 38 38 35	28 21 19 32 32	47 35 44 40 38	32 28 34 36 32	54 48 48 49 45	40 36 41 41 37	.52 53 55 45 47	35 32 38 39 32	46 44 48 39 40	29 32 38 29 27	54 53 45 47 48	35 33 33 35 39	54 43 50 42 38	34 34 34 38 34	50 42 47 49 49	39 32 30 35 32	51 39 49 39 37	33 32 33 35 33	47 38 44 39 37	26 31 29 37 33	38 33 40 36 35	28 25 27 33 32	46 40 46 38 37	31 27 36 35 31	41 35 44 38 35	27 22 33 34 31	42 37 43 36 35	25 22 32 34 34
26 27 28 29 10	28	20 0 3 11 9 25	32 26 26 31 31 36	24 21 16 18 17 27	42 34 36 45 44 33	32 28 19 26 26 29	40 36 40 43 40 42	30 22 24 30 33 30	33 28 37 42 35 33	25 12 12 24 21 21	49 50 48 50 48 47	37 36 35 24 19 23	33 32 32 39 30 30	33 23 23 24 23 24	38 28 32 37 31 38	28 20 12 23 20 21	34 29 30 34 30 34	27 21 20 20 22 27	33 29 33 35 31 36	32 24 15 16 16 25	32 25 30 34 32 34	22 19 12 17 16 27	33 33 32 37 32 32	28 24 25 25 25 25 23	33 25 30 36 32 33	22 20 17 22 24 24	31 30 30 32 31 30	2: 20 2: 2: 2: 2: 2: 2:
Mns	39.5	23.9	41.3	30. 2	50.2	33.8	49.9	31.0	43.7	24. 9	48, 9	29. 0		29.8		29. 9		28.7		29. 2		27.4	45. 9		41.7	29.3		29.
		01	hio.							Indi	ana.												Ken	tucky.				
Date.	Mar	rion.	Wav	erly.§§	Butle	erville.	Evan	sville.		anap- lis.	Kok	omo.	Rock	ville.	Wort	hing- n.	Philo	o, Ill.		e.§§		vling en.§§		ling- n.§§	Gre	ens- g.§§.		ing- n.
-	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	61 62 57 52 51	50 49 43 36 36	58 62 59 60 56	51 44 44 42 33	62 62 61 55 62	50 47 49 44 38	63 61 59 54 60	49 48 49 45 40	56 58 57 49 57	52 50 47 40 40	59 56 56 56 50 56	50 50 49 36 37	62 60 56 54 58	52 50 51 37 39	61 58 60 57 60	52 49 51 41 37	58 55 55 51 55	47 49 49 42 38	65 61 63 59 66	49 43 43 45 32	66 66 58 63	48 44 45 47 34	70 69 61 53 66	48 54 44 47 37	66 65 61 57 63	50 44 42 46 35	58 60 57 53 60	50 5. 44 44 34
6 7 8 9		39 24 17 13 26	52 51 32 36 38	34 31 13 14 23	55 52 35 36 45	44 20 15 15 25	62 49 32 37 47	49 22 22 22 22 30	54 46 30 37 42	46 16 16 20 29	58 54 30 38 48	39 18 15 16 34	56 50 32 40 43	46 18 16 16 26	55 53 32 39 44	48 22 17 17 26	55 46 28 38 43	44 18 16 16	65 54 29 45 49	32 37 16 13 12	58 51 33 30 48	50 41 18 15 20	64 49 33 44 50	16	56 50 32 41 49	35 36 19 15 17	54 50 28 35 42	1 2 2 2
11 12 13 14	53 55 55	21 27 27 27 24 22	42 52 57 55 50	24 19 22 25 27	48 55 56 58 57	24 29 28 37 32	51 55 57 57 44	34 36 36 44 34	43 52 49 55 51	31 32 34 38 30	44 52 56 54 46	21 30 30 32 27	50 54 53 58 47	26 29 29 30 28	50 53 55 57 50	25 25 26 32 29	46 51 52 54 41	27 29 28 32 30	48 59 61 51 62	17 15 16 22 22	51 53 56 52 57	37	55 60 62 58 56	24 25 29	50 58 60 49 61	22 20 22 25 28	40 52 53 52 56	2 2 3 3 3
16 17 18 19	39 41	33 31 25 21 25	47 47 47 43 46	25 27 25 16 20	50 52 47 47 48	33 33 27 22 28	47 50 45 46 52	33 38 32 30 38	44 43 40 41 44	38 34 29 26 30	43 41 39 42 41	34 34 23 20 23	47 44 41 46 45	37 35 25 24 24	44 49 46 48 48	29 39 26 23 25	40 43 40 40 35	36 33 26 22 25	62 50 52 49 48	27 14	56 52 50 50 50	28 29 22	54 52 49 50 48	31 37 24	60 48 48 53 55	26 27 31 19 21	53 49 44 43 49	2
21 12 13 14 25	34 40 38	27 19 24 23 33	46 39 47 42 40	34 30 33 36 34	45 47 42 38 35	30 22 33 33 33 32	44 40 42 38 36	33 29 37 36 31	41 36 39 37 35	28 24 33 32 31	38 37 36 36 36	28 16 28 32 29	41 37 33 35 36	31 19 32 32 31	43 43 40 37 37	24 22 35 34 32	35 34 33 35 34	26 25 32 32 30		31 35	42 48 41 39 38	33 34 32	38	27 31 33	45 46 42 38 47	36 33 34 36 38	44 42 43 36 34	3
26 27 28 29 30	24 28 34 41	22 16 14 21 23 26	46 30 31 39 30 33	28 22 17 15 20 25	35 32 31 40 30 27	29 26 27 25 25 24	33 33 33 39 31 32	30 30 30 29 29 29	32 29 33 31 30 28	28 26 27 26 27 26 27 26	31 30 33 31 30 29	26 16 25 26 26 26 25	35 34 34 31 38 31	26 26 28 27 27 27	33 31 33 32 32 32	29 28 29 29 29 28 28	32 30 33 30 30 30	25 26 25 28 28 28			33 34 34 37 37 37	26 29 25	32 32 33 38 31 33	30 30 31 29	39 35 34 39 31 30	32 30 33 30 27 27	30 26 29 35 26 27	2 2 2 2
		27.1				30.5				31.8		28.9	44.5				41.4		1				48.7			30. 2		

Table 3.—Maximum and minimum temperatures for December, 1913. District No. 3-Continued.

-			Kent	ucky.								7	Cennes	900.												Virg	inia.	
Date.	Louis	sville.	Ma vill	ys- e.§§	Willi		Cha		John Cit;	nson y.§§	Knoz	cville.	Nash	ville.	Palm	etto.	Spa	rta.	Way		Deca	.§§	Ashv N.		Blac		Wyt	the- le.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Mîn.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	57 60 61 54 60	52 52 51 47 39	64 66 59 60 63	52 46 42 45 34	60 62 60 53 64	42 45 43 44 36	65 65 58 61 59	52 49 44 47 44	55 61 58 58 58	46 46 41 47 32	58 63 58 60 62	50 45 41 46 37	67 66 63 59 62	52 46 47 47 40	68 66 61 59 64	52 39 37 41 35	53 66 60 59 66	23 39 40 41 35	66 69 61 59 65	43 38 38 44 39	67 65 62 64 64	53 43 42 43 45	50 58 53 55 64	42 43 45 42 32	42 50 55 57 60	39 37 34 43 36	45 50 53 58 61	40 40 46 38 35
6 7 8 9	54 49 32 37 45	49 20 19 22 28	58 50 30 40 44	34 40 16 17 21	65 50 32 41 50	35 44 18 16 15	58 54 38 45 53	47 28 23 25 25 25	66 53 28 31 45	32 38 18 18 17	62 55 32 41 48	42 28 21 25 23	60 50 34 40 52	50 26 22 21 24	59 55 37 43 54	51 35 21 16 18	67 60 36 41 48	44 35 20 15 15	61 62 38 45 51	46 37 22 15 19	59 56 38 44 50	44 45 25 22 22	68 55 27 42 49	38 27 17 19 16	66 56 30 35 45	32 30 11 18 17	63 54 24 37 29	34 22 14 17 22
1 2 3 4 5	47 54 54 55 56	32 32 33 42 37	44 57 59 58 56	24 21 21 21 21 27	48 52 48 50 60	16 18 20 30 31	51 55 55 43 58	35 32 28 39 40	50 54 50 50 58	17 21 23 23 29	47 54 55 47 58	29 27 27 33 40	52 56 57 48 61	33 28 31 41 38	51 58 59 48 59	18 20 28 41 41	50 56 60 45 60	18 20 18 33 42	54 58 61 53 59	23 22 25 42 40	54 56 59 48 60	22 26 26 30 44	43 55 56 51 56	29 21 24 28 35	41 56 56 54 55	30 24 24 23 25	41 56 57 50 55	25 25 27 28 28
6 7 8 9	50 51 44 46 53	31 34 31 27 34	51 51 47 49 53	26 27 29 18 19	60 57 52 56 56	26 27 30 18 22	61 55 56 49 51	35 41 40 37 39	56 57 54 54 52	28 28 33 23 25	58 54 55 49 53	35 35 38 31 32	59 49 51 52 55	34 34 36 30 39	61 54 53 54 55	30 34 38 22 36	59 61 52 57 55	28 30 42 22 36	63 58 51 56 55	30 36 38 22 30	60 60 54 55 56	36 36 43 30 30	56 57 51 45 58	29 33 34 27 30	55 55 49 46 52	22 30 30 15 22	53 54 49 46 53	24 32 22 17 23
11 12 13 14 15	43	32 26 37 35 30	49 45 47 38 37	26 27 30 36 34	50 52 50 50 50	26 22 27 32 31	58 50 50 48 49	38 34 40 37 35	48 52 51 49 51	30 26 28 42 37	56 52 55 48 52	37 30 42 39 36	47 47 51 44 41	40 36 37 36 32	49 55 50 44 41	40 27 38 35 34	56 56 52 50 50	30 23 33 33 34	54 55 59 50 39	31 36 36 37 33	51 56 43 50 39	42 34 34 39 38	56 46 52 47 42	28 27 38 35 34	52 51 44 46 40	27 25 33 27 33	48 48 43 46 41	26 24 34 33 33
96 27 28 19 11	32 34 40	30 28 30 28 27 26	33 33 33 42 29 32	31 24 20 20 20 20 24	33 40 41 40 41 35	30 29 28 30 33 30	38 46 40 44 47 40	33 30 33 38 38 38	33 37 41 47 47 40	31 24 25 31 36 33	38 42 43 44 44 38	33 30 32 37 36 32	36 36 39 42 39 34	32 31 31 36 29 29	35 37 41 41 39 35	32 29 29 37 31 31	52 42 44 42 44 37	32 30 30 39 34 28	35 41 40 38 36	31 31 30 35 31 29	39 40 41 44 44 37	34 28 30 37 37 37 33	37 47 41 40 46 41	28 24 30 35 36 31	34 40 37 38 46 33	28 16 21 30 26 25	33 37 39 38 42 31	20 10 15 30 28 28
Ins	46.0	33.6	47.6	28.1	50.3	28.8	51.6	36.8	50.0	29. 9	51.0	34.5	50.0	35.1	51.1	32.8	52.8	30.4	52.5	32.5	52.1	35.3	49.8	30.9	47.6	26. 9	46.6	27.

\*, b, \*, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 4, THE LAKE REGION.

Prof. HENRY J. Cox, District Editor.

### GENERAL SUMMARY.

The unseasonably mild weather which prevailed over all portions of the Lake Region during the month of November continued without material interruption in all sections of the district during December, and this condition, combined with a decided lack of appreciable precipitation, caused the month under discussion to be one of the most remarkable on record during the winter season. In northwest sections the abnormal warmth and the marked absence of snow interfered greatly with lumbering operations, but over the balance of the district the month was most favorable for all outdoor pursuits and building activities were carried on until an unusually late date. During the first decade of the month lawns and pastures remained green, dandelions bloomed here and there, and lilacs, pussy willows, and other shrubs showed signs of awakening life.

The month was singularly free from heavy storms of any description and no severe cold waves occurred in any portion of the district. Considerable cloudiness prevailed during the last week of the month, and at many points this condition was most pronounced.

The following table summarizes most of the chief features of interest in the various portions of the district:

		al.			li.	in 24		1		ber o	of	tion.
Portions of States.	Mean temperature.	Departure from normal	Mean daily range.	Mean precipitation.	Departure from normal	Greatest precipitation hours.	Mean mowfall.	With 0.01 inch or more precipitation.	Clear.	Partly cloudy.	Cloudy.	Prevailing wind direction
Minnesota Wisconsin Illinois Indiana Upper Michigan	25. 9 31. 5 37. 4 34. 3	+10.7 + 9.3 + 8.1 + 7.4 + 9.5	14.8 13.7 9.9 12.0	0. 16 0. 33 0. 38 0. 77 0. 43	-0.98 -1.20 -1.49 -1.39	0.25 0.51 0.29 0.76	2.2 0.2 2.6 4.1	1 3 5 4	15 15 9 8	10 5 4 6	6 11 18 17	W. SW. SW.
Lower Michigan. Ohio	32, 8 34, 3 35, 0 30, 5 26, 2	+ 6.5 + 4.7 + 3.3 + 5.4 + 3.2	11.9 11.5 9.9 12.3 17.2	0. 75 1. 07 1. 07 2. 12 2. 39	-1. 51 -1. 44 -1. 52 -1. 99 -0. 84 +0. 12	0. 99 0. 82 0. 39 1. 50 1. 27	3. 5 4. 3 5. 7 14. 8 24. 5	4 7 9 9	11 11 8 3 7 6	7 6 5 8 7	13 17 23 16 18	SW. SW. SW. SW.

#### TEMPERATURE.

The temperature during the month averaged decidedly above the normal over all portions of the Lake Region, the greatest departure, 15.2°, occurring at Chatham, Mich. At many stations in the western half of the district the number of days with mean temperature below the average did not exceed two or three, and in these few instances the deficiencies were small. At Houghton, Mich., the monthly mean was higher by 3.2° than the previous highest average for December, and the maximum temperature of 57° on the 11th exceeded the previous high reading for the same month by 10°. The records, however, for this station extend over a period of 14 years

only. The daily excess in temperature over eastern sections did not exceed 5° in most instances.

The most pronounced warm periods occurred from the

The most pronounced warm periods occurred from the 1st to the 6th, inclusive, and from the 12th to the 17th, inclusive, although the month as a whole was not characterized by extreme warmth but rather by a succession of days the average temperatures of which were moderately above the normal. Moreover, zero temperature did not occur in most sections until the third decade of the month, but a reading of  $-2^{\circ}$  was recorded at Northfield, Vt., on the 12th. At Duluth, Minn., the month was the third December within the past 43 years in which a temperature of zero was not recorded, the minimum this year being  $3^{\circ}$  above on the 25th.

The only cold period of the month prevailed over eastern sections from the 27th to the 29th, inclusive, the lowest reading being -18° at Hyde Park, Vt., on the 28th.

#### PRECIPITATION.

Over practically the entire Lake Region the month was one of the driest on record, the deficiency of moisture being most marked at stations in southwestern Lower Michigan where the departures exceeded 2 inches. At but four points in the district did the monthly precipitation total above the normal and these departures were confined to extreme eastern portions and were local in character.

At Duluth, Minn., the monthly amount, 0.17 inch, was the least on record with two exceptions for the past 43 Decembers, and no precipitation of consequence occurred until the 25th. The driest weather occurred in the second decade of the month, all stations with the exception of those in New York State reporting scarcely more than traces during that period. No heavy rains were recorded in any section of the district, although in Illinois, Indiana, and Ohio most of the precipitation occurred in the form of rain.

Snow.—With the exception of Vermont, northern New York State, and the Upper Michigan peninsula the ground in the Lake Region was generally free from any appreciable snow covering until the closing days of the month. On the evening of the 29th snow to the depth of from 3 to 16 inches covered the eastern portions of the district, while in other sections, with the exception of a limited area along the southern and southwestern shores of Lake Michigan, the depths ranged from a trace to 4 inches. However, over practically the whole of the Lake Region the month was one of marked deficiency in snowfall, amounts approaching the normal being recorded only in eastern sections. In the Michigan peninsulas the monthly snowfall was the least on record in recent years, and owing to the unusually mild conditions, the snow did not remain upon the ground for any great length of time.

Heavy snow fell on the 8th and the 26th in Vermont and the northern and central counties of New York State; the snow on the latter date accompanied the only severe storm of the month over those sections. At Syracuse the total snowfall on the 26th was 13 inches, and in Vermont the snow was accompanied by high winds which drifted it badly, thus causing delay to traffic.

#### STORMS.

Heavy northwest gales prevailed over the Great Lakes during the 6th-8th, the maximum velocity at Duluth, Minn., being 52 miles an hour on the 6th, at Alpena, Mich., 46 miles an hour on the 7th, and at Cleveland, Ohio, 60 miles an hour on the 8th. Over northern Lake Huron this storm was accompanied by blinding snow, but no casualties were reported. This was the only storm of importance which passed over any portion of the Lake Region during the month, aside from the storm of the 26th, mention of which was made in a previous paragraph and the influence of which was confined chiefly to the States of New York and Vermont.

#### NAVIGATION AND ICE CONDITIONS.

The display of storm warnings on the Great Lakes was terminated at the close of December 10, but owing to the moderate weather conditions which followed, local navigation was still possible at most ports at the end of the month. No appreciable amount of ice formed in any of the harbors on the Lakes until the third decade and at the close of the month the greatest thickness was reported from the western Lake Superior Region. But little ice formed elsewhere, however, and in comparison with the conditions of former years, the amounts were considerably below the average for this time of the year.

#### ERRATA.

The following corrections should be made in the Climatological Data for the month of October, 1913:

In Table 3 the maximum temperature at Sault Ste. Marie, Mich., on October 27 should be 40° instead of 39°. In Table 1 the average temperature for the month at Oconto, Wis., should be 48° instead of 48.8°; the monthly departure should be -0.6° instead of +0.2°. In Tables 1 and 2 the total monthly precipitation at Oconto, Wis., should be 2.06 inches instead of 2.16 inches; in Table 1 the monthly departure should be -0.28 inch instead of -0.18 inch.

#### DECEMBER LAKE LEVELS.

The following data are from the report of the United States Lake Survey:

	Lake Superior.	Lakes Michigan and Huron	Lake Erie.	Lake Ontario.
Above tidewater at New York	Feet. 602.74	Feet. 580.35	Feet. 572.14	Feet. 245. 91
Above or below: Stage of November, 1913 Stage of December, 1912	-0.17	-0.09 +0.12	-0.14 $+0.59$	-0.15 -0.20
Mean stage of December last 10 years Highest recorded stage	+0.42 $-0.39$	+0.15 -2.40	$+0.45 \\ -1.39$	+0.39 -1.70
Lowest recorded stage Probable change during January	+1.54 $-0.30$	+1.35 -0.10	+1.28 0.00	+2.48 +0.10

### SUMMARY FOR THE YEAR 1913.

The principal features of the year 1913 were the unusually heavy rains and unprecedented floods which occurred over the southeastern portion of the district

during the last decade of March, the abnormal heat and drought of the summer season, and the severe northwest gale which swept the Great Lakes during the 7th-10th of November. The temperature for the year averaged above the normal in all sections, the mean of 51.6° at Chicago being one of the highest annual averages in the 43 years of official records. At that station all months, with the exception of February, showed an excess in temperature. Taking the district as a whole, the warmest months were those of January, November, and December, the latter two having a daily excess of from 6° to 9° in western sections and from 3° to 6° in eastern. In the southwestern part of the district the summer was one of the warmest in recent years, although the maximum temperatures did not reach those of the record-breaking season of 1911. Over the portions of Wisconsin, Indiana, and Ohio located in this district the annual precipitation was above the average, and markedly so in the last named State, where the departure averaged 7.93 inches. excess of precipitation, however, was chiefly the result of the heavy storms over that State during the period from March 23 to 27, inclusive. The greatest annual deficiencies occurred over the extreme western Lake Superior Region, where the average was -6.12 inches. In eastern sections the summer was one of prolonged drought, this condition not being relieved until the middle of September, and the deficiences in rainfall for the months from May to September, inclusive, in the portions of the States of Pennsylvania, New York, and Vermont located in district 4 ranged between 5 and 6 inches.

The year opened with a continuation of the mild weather which had prevailed over the entire Lake Region during the preceding month of December, 1912, and the January means were much above the normal, except in Minnesota, Upper and Lower Michigan, and Wisconsin. In fact, over eastern sections, January, 1913, was one of the warmest midwinter months in many decades. Conditions during February were in general much the reverse of those experienced in January, and the month may be characterized as cold, but not unusually so, and for the most part dry. The month of March was remarkable for the unusually severe and frequent storms which swept the district during the latter half of the month. The storms resulted in widespread and damaging floods and destructive gales and caused great loss of property and some loss of life. The precipitation over southern sections in some instances was more than three times the normal amount for March, and the flood in the rivers of Indiana and Ohio were the greatest in the history of those States. A severe windstorm swept the Lakes on the 21st, and a destructive sleet storm occurred on the 25th-27th in northern New York. April and May were featureless as regards unusual meteorological conditions. The month of June was marked by great extremes of temperature, deficient precipitation, and many days of clear pleasant weather, with a correspondingly high percentage of sunshine.

July was characterized by an unusually large number of thunderstorms, many of which were destructive to life and property. In most sections of the district, August was deficient in rainfall and in New York and Vermont the lack of precipitation was severely felt. With the general and heavy rains on September 16–17, however, the droughty conditions over this portion of the

Lake Region were effectually broken. In western and southwestern sections previous high maximum temperature records were exceeded during the extreme heat of the first eight days of September, while the first severe frosts of the season occurred on the mornings of the 14th-15th over the interior of New York. In many localities these frosts were said to be the heaviest experienced in September in years, and much damage was done to susceptible vegetation. As a whole, the month of October was wetter and warmer than usual and there was much cloudy weather. The temperature for November averaged considerably above the normal, but the month was generally deficient in precipitation. The storm which swept the Lake Region on the 7th-10th, mentioned in a previous paragraph, was the most severe in many years, and numerous disasters and casualties occurred as a result. It was accompanied over eastern and central sections of the Lakes by driving snow, which greatly increased the peril of vessels and tied up land traffic to a marked extent, especially in the vicinity of Cleveland, Ohio. December, like its predecessor, averaged much in excess of the normal temperature over the entire district and was also deficient in precipitation. In fact, the weather during the first and second decades of the month more closely resembled a month of spring or autumn than one of winter, and in most sections it was not until after Christmas that more seasonal weather was experienced.

The following tables present the monthly values of temperature and precipitation and the departures from the normals for the various portions of the district:

#### MEAN TEMPERATURES, 1913.

Portions of States ly- ing in Dis- trict No. 4.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oet.	Nov.	Dec.	Annual.
Minnesota	6.3	6.1	17.3	42.3	47.4	59.6	61.3	63.6	54.6	40.8	36.1	25. 9	38. 4
Wisconsin											39.5	31.5	
Illinois											47.2	37.4	
Indiana Upper Michi-	30.4	23.3	35. 2	49.7	59. 1	70.7	74. 4	73.2	63.5	52. 2	45.3	34.3	50. 9
ganLower Michi-	16.3	8.4	19.6	40.7	48.2	62.2	63.1	64.4	55.9	44.7	37.2	29. 1	40.8
gan	26.6	19.1	30.6	45.5	54.9	67.0	70.1	69.8	61.2	50.7	41.5	32.8	47.5
Ohio								72.9				34.3	51.1
Pennsylvania	35.9	24.4	37.8	46.2	55.8	65. 9	70.4	69.8	62.6	54.4	45.7	35.0	50.3
New York	30.3	18.7	34.0	45.9	54.0	63.2	68.7	66.7	58.9	52.0	40.4	30.5	46. 9
Vermont	27.9	15.9	33.3	44.2	51.6	61.2	67.6	65.3	58.4	52.0	39.0	26.2	45.2

### MEAN DEPARTURES FROM NORMAL TEMPERATURES, 1913.

Portions of States ly- ing in Dis- trict No. 4.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct	Nov.	Dec.	Annual.
Minnesota	- 2.0	-4.5	-5.9	+2.8	-2.0	+1.5	-3.0	+0.9	-0.7	-2.8	+6.8	+10.7	+0.5
Wisconsin												+ 9.3	
Illinois												+ 8.1	
Indiana Upper Michi-												+ 7.4	
	+ 1.8	-3.6	-3.2	+2.8	-0.4	+3.2	-1.3	+1.3	0.0	-0.4	+5.7	+ 9.5	+1.3
	+ 4.4	-0.9	-0.3	+1.6	-0.3	+1.9	+0.3	+2.0	-0.4	+1.1	+4 6	+ 6.5	41 '
												+ 4.7	
Pennsylvania													
												+ 5.4	
												+ 3.2	

#### MEAN PRECIPITATION, 1913.

Minnesota	0.41	0.66	2.18	1.61	4.37	2.54	5.34	1.82	2.83	3.16	0.77	0. 16 25, 85
Wisconsin	1.18	1.22	3. 19	2. 10	5.85	2.94	5.38	1.98	3.72	2.95	1.57	0. 33 32. 41
Illinois	1.40	2.18	3.44	1.91	4.38	1.08	3.30	4.06	1.49	2.23	1.47	0.38 27.32
Indiana	4.08	1.44	5.96	2.36	4.35	0.89	3.92	2.98	2.14	3.08	2.14	0.77 34.11
Upper Michi-												
gan	1.56	1.80	3.05	1.70	2.56	3. 15	4.21	2.16	3.83	3.07	2.00	0.43 29.52
Lower Michi-											1	
gan	2.47	1.30	3.51	2.87	2.87	1.91	2.94	2.50	1.89	3.41	2.03	0, 75 28, 45
Ohio	6.36	1.83	9.19	3.02	3.97	1.64	4.46	2.62	2.22	3.81	3.03	1.07 43.22
Pennsylvania	5,60	2.01	7.36	2.03	2.68	2.79	1.36	2.66	1.69	4.84	4.18	1, 07 38, 27
New York					2.81							2, 12 36, 48
Vermont					3.19							2, 39 33, 50

#### MEAN DEPARTURES FROM NORMAL PRECIPITATION, 1913.

Portions of States lying in l No. 4.	District	Jan.	Feb.	Mar.	Apr.	May.	June.
Minnesota . Wisconsin . Illinois . Indiana . Upper Michigan . Lower Michigan . Ohio . Pennsylvania . New York . ermont .		$\begin{array}{c} -0.44 \\ -0.25 \\ -0.58 \\ +2.42 \\ -0.23 \\ +0.22 \\ +3.76 \\ +2.57 \\ +1.63 \\ +0.53 \end{array}$	-0.23 -0.15 +0.38 -1.05 +0.41 -0.66 -0.65 -0.84 -0.54 -1.09	+0.58 +1.27 +0.89 +3.14 +1.35 +1.19 +6.35 +4.70 +2.40 +3.21	-0.65 -0.38 -0.97 -0.42 -0.18 +0.54 +0.15 -0.37 +0.32 -0.30	+0. 43 +2. 49 +1. 01 +0. 40 -0. 64 -0. 49 +0. 53 -0. 75 -0. 42 +0. 14	-0.34 -2.58 -2.78 +0.20 -1.09 -2.09 -1.47
Portions of States lying in District No. 4.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Minnesota. Wisconsin. Illinois. Indiana. Upper Michigan. Lower Michigan. Ohio. Pennsylvania. New York.	+1.69 -0.34 +0.86 +0.66 -0.03 +0.76	-2.03 -1.15 +1.18 0.00 -0.63 -0.02 -0.37 -0.60 -0.68	-1.65 +0.38 -1.53 -0.51 +0.23 -0.98 -0.61 -1.80 -0.72	+0.34 +0.51 -0.32 +0.49 +0.49 +0.97 +1.25 +1.04 +1.41	-1.01 -0.26 -1.03 -0.76 -0.38 -0.40 +0.37 +0.57 -0.16	-0.98 -1.20 -1.49 -1.39 -1.51 -1.44 -1.52 -1.99	+2.61 -5.38 +0.43 -0.23 -2.19 +7.93 -0.28

TABLE 1 .- Climatological data for December, 1913. District No. 4, Lake region.

			years	Temp	erature	, in c	legre	es Fah	renh	eit.	Prec	ipitation	, in în		days, more.		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 bours.	Total snowfall, unmelted.	Number of rainy d	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Minnesota.																				
Cloquet	St. Louis	800 1,133	2 42	26. 2 26. 7	+ 9.0	55 53	11 11	0	25 25	37 29	0.25 0.17	- 1.05	0.25 0.16	2.5	1 3	13 10	10 13	8	w. w.	State Forest Exp. Station. U. S. Weather Bureau.
Grand MaraisStephens Mine	St. Louis Lake	606 1,500 614 1,434	6 19 19	23. 2 29. 6 23. 8	+10.7 +12.4	50 56 49	11 4† 11	- 5 1 - 5	25 25 25 25	37 43 29	0. 15 0. 05 0. 20	- 0.91 - 0.97	0. 15 0. 05 0. 20	1.5 2.0 2.0	1 1 1	12 14 24	10 12 6	9 5 1	w. w. nw.	O. W. Nelson. Oliver Iron Mining Co. G. W. Watts. Oliver Iron Mining Co.
Wisconsin.	Outagamie	795	12	31.2	+ 9.0	50	4†	11	21	23	0.49	- 1.21	0.28	0.2	5	16	5	10	sw.	Wm. O. Thiede.
Ashland	Ashland	615 635 804	22 4 15	29.3 32.0	$+8.9 \\ +11.3$	55 59	11	10	22†	36	T. 0.08	- 1.04 - 1.53	T. 0.08	T. 1.0	0	14 16	12 7 2	5 8 12	sw.	Agricultural Exp. Station Rev. Sabinus Mollitor.
ecilornucopiarandon	Bayfield	640 1,060	1 18		+ 8.1	59 52b	12 5†	7	19†	34 42b	T. 0.21	- 1.51 - 0.90	T.	T.	0	17	4	8	SW.	Louis W. Schmidt. Reed Fruit Co. Ralph Van Zile.
lorenceond du Lac rand River Locks	Florence	1,293	22 27	29.6 30.8	+11.0	54	4 4†	3 3 8	22 21†	31	0.04	- 1.53 - 0.91	0.04	T. 0.2	1 4	16 14	0	15 12	W.	Fred S. Evans.
reen Bay	Brown	770 617	17 27	31. 2 31. 4	+10.1	54 52	5	8	21 21	29 22 38	0, 46 0, 46	- 0.84 - 1.35	0.16	0.4	5	19 11	5 0 7 4	12 13	SW.	Jerry Parkinson. U. S. Weather Bureau.
Iigh Fallsron River	Bayfield	1,125 1,096	1 4	29.8		60	5	0	21				0.05	0.3	3	17		10	nw.	No. Hydro-Elec. Pow. Co.
Tewaunee	Manitowoe	590 616	62	32.8 33.2	+ 8.0	52 51	13	10 13	21† 21	29 25	0.55 0.63	- 1.18 - 0.77	0. 24 0. 33	T. 1.0		13	6	18	w. w.	Anton M. Jessen. Miss Johanna Lups.
Ienasha Ienomonee Falls Iilwaukee	Winnebago Waukesha	764 842 681	16 4 43	31.6	+ 9.2	49	2	10	21†	31	0.28		0 24	0.2	4	19	5	10	SW.	Geo. T. Allanson. Arthur H. Christman.
lew London	Outagamie	762 590	17 22	30.4	+ 9.2	56 51	12 4 5	17	21	25 26	0.08	- 1.84 - 1.06 - 1.76 - 0.87 - 0.87	0.05	0.2 T.	4 2 1	12 14	10 0	15 7 14	w. sw.	U. S. Weather Bureau. August H. Pape.
Shkosh	Winnebago	744	24 18	30.6	+ 9.9 + 8.9 + 7.5 + 9.8	63 51 52	13	7 8 7 6	21	33 27. 28	0. 14	- 0.87	0. 14 0. 48 0. 38	T. T. 0.1	1	17 20 14	6 8	5 9	sw. sw. nw.	Harry M. Lord. Even Vincent.
lum Islandlymouth	Door	588 843	5 3	32.2n		5111	4† 5 13	12m	21 27	19m	0. 08		0. 38	T. T.	2	48 15				Geo. H. Carpenter. Fred M. Staal. Paul O. Feldrappe.
ort Washington	Ozaukee	713	20 16	33.8	+ 9.5 + 9.3	51 57	4† 12	12 13 17	21	24 27	0. 35 0. 36	- 1.41	0.20	1.0 T.	3	12 19	6 3	13	sw.	Richard C. Kann. Daniel Davis.
iponheboygan	Fond du Lac	1,031	3 14	32.4	+ 8.2	51	4 12	10	21 21	28 24	0.68	- 1.00	0.26	0.5 T.	5 2	10	8	13	SW.	Ripon College.
turgeon Bay	Door	600 701	14	31.1	+ 6.4	56	12 12 11	4 5	27 25 21	30 27	0.33		0.22	T. 1.4	4 3	17 15	5 5 9 4	9 7	nw.	Louis C. Meyer. Adam N. Dier. Edward B. Banks.
Vaupaca	Waupaca	857	18	30.0	+10.0	52 51	3†	4	21	34	0. 18	- 1.18	0.11	T.	2	18	4	9	SW.	James H. Flagg.
Illinois.																				
hicago Highland Park		823 691	43	37.4	+ 8.1	57	4	18	7	29	0.45	- 1.62 - 1.36	0.29	2.7	5 2	9	4	18	sw.	U. S. Weather Bureau. Jesse L. Smith.
Indiana,																		-		
uburn		874	17	31.0	+ 5.0	594		64		34d		- 1.26			. 2	8	31			Mrs. Josie B. Kuhlman.
Serne	Allen	849 856 598	17 22	34.8	+ 7.5	60 59	1	14	27 27	32	0.48	- 1.79	0. 13	3.5	7	9	5	15	nw. sw.	Henry M. Reusser. U. S. Weather Bureau.
Iammond Iowe Notre Dame	Lagrange	886 712	8 2	32.9 34.7	+ 9.7	60	6	15	8† 27	37 33 30	0.91	- 1.79 - 1.11	0.36	3.5	3	13	6 4 7	19	sw.	A. A. Wade. U. S. Weather Bureau.
Whiting		606	4	35.8		1	1	11 17	27 8	29	0. 27		0.40			8 5	5	16 21	SW. SW.	D. H. Boyd.
Michigan— Upper Pen- insula.																				
BaragaBergland	Ontonagon		11 3 25	27.6 27.7	+ 6.6	54 51	13 11	1 8	22 21†	34 28	0.32	- 0.60	0. 16	4.0	4	9 10	2 4	20 20 17	w. sw. w.	D., S. S. & A. Ry. Frank McMonigal. E. S. Grierson.
		875 610	12 12	28.2	+15.2	56	41		26	40		- 1.80			8	11	7	13	S.	Upper Peninsula Exp. St. Mrs. Sarah E. McGaw.
agle Harbor	Keweenaw	622 612	14 40	31.4	+ 7.1 + 8.4	47 56	14	13 8	22 21	22 22	0.31	_ 1 30	0.14	2.7	5	8 12	0 5	23 14	SW.	T. J. Bennetts. U. S. Weather Bureau.
natham. beer Park. lagle Harbor. lagle Harbor. lagen Harbo	Ontonagon	1, 147	12 12	26.8 31.9	+ 7.1 + 8.4 + 9.7 + 8.6	54	13 12†	- 3 12	22 26	33 28	0.82	- 1.22 - 2.28	0.41	8.0	5	14 12	6	16 13	sw.	W. B. Hatfield. Mrs. Lena Truedell.
Ioughton	Houghton Marquette	668 1,536	12 16	27.8	+ 8.1	53	11 13	- 8 - 5		32 43a	0.36	- 1.22 - 2.28 - 2.11 - 0.82	0.23	4.2	4		6 10	17 18a	w. w.	U. S. Weather Bureau. D., S. S. & A. Ry. Chapin Mining Co.
ron River	Iron	1,111 1,504	12 16	27.2	+12.3	57 54	13 5†	4	21 22	37	0.11	- 1.17 - 1.42 - 1.79 - 1.65	0.06	0.5 T.	3 4	15 15	14	3 2	sw.	Victor D. Laing.
ronwood	Marquette	1,536	10	28. 4 28. 2	+12.5 +11.1	53	13	5		31 34b	0.32	- 1.79 - 1.65	0.32	1.4		15	17	14	sw.	J. V. Brennan. Cleveland Cliffs Iron Co.
sle Royale	Keweenaw Mackinac	831	12						>											J. A. Malone. Mackinac I. State Park Co
Iaple RidgeIarquette	Delta	734	7 42	27.9 31.6	+ 8.7	53	13	11	27 21	30	1. 10 0. 94	- 1.58	0.40	7.0		15 11	5	14 15	n. nw.	Herman Johnson. U. S. Weather Bureau.
lunising	Alger	631	14	28.6	+ 8.9 + 9.1	52	4	13	27 29	25 27	0.05	- 1.58 - 1.18 - 1.54 - 0.51	0.05	T. 8.0	10	20 11	6	14	sw. nw.	Chief of Fire Dept. Albert Oas.
Newberry	Luce Ontonagon	1, 147	11 12	28. 2 30. 8	+ 9.0	48 54	11	10	26 22	25 27	0.60 T.	- 0.51	0. 28 T.	5. 2 T.		9	11	11 21	SW.	John Brown. T. A. Green.
owerst. Ignace	Menominee	593	13 23	32.0		49	5	10	27	26	0.55		0.30	5.5	. 3	15	12	4	w.	D., S. S. & A. Ry. U. S. Weather Bureau.
eney	Schoolcraft	730	25	26.6		55	5 2	- 2 - 6	26 26	27 44	0.45		0.40	3.5	7	13	9	19	nw.	Western Land Securities
Thomaston	Ontonagon	1,263	16	27.0		53	3 12†	5	211		0.20		0. 25	3.0	2	16	26 6	9	nw. w.	D., S. S. & A. Ry. R. S. Schultz, jr.
Watersmeet Whitefish Point	Gogebic Chippewa		13			49	3	1 4	26 26	31 27	0. 23 0. 46	- 2.25	0.10	3.8		13 11	1	16 19	sw. nw.	B. N. Grant. Robert Carlson.
Michigan—Lower Pen- insula.																				
drian	Allegan	698	35 22 26	34. 0 35. 6	+ 5.9 + 7.3 + 5.5 + 6.2	58 60 57	2 2 2 2	13		26 29	1.50 1.20	- 1.50	0.41	6.0	4	7 5	12	16 14	sw. w.	H. E. Hubbard. Pere Marquette R. R.
lma	Gratiot	750 609	26 40	31.8	+ 5.5	57 52	2	- 3	27	23	0.88	- 1.52 - 1.68	0.32	3.5	4		15	13	sw.	P. M. Smith. U. S. Weather Bureau.

Table 1.—Climatological data for December, 1913. District No. 4—Continued.

			rears.	Temp	perature	, in	degr	ees Fal	hrenl	heit.	Pre	cipitation	n, in in	ches.	lays,		Sky		direc-	-
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest dally range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfail, unmelted.	Number of rainy days, 0,01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	pq	Observers.
Michigan—Lower Pen- insula—Continued.																				
Ann Arbor	Washtenaw	930			+ 6.3	57	2	14	27	27	1.09	- 1.11	0.38	3.7	6	6	6	19	w.	University of Michigan.
Arbela			17 24		+ 5.1 + 5.6	56	1	- 1	27 28 27 27 27 27 27	24 29	0.81	- 1.56 - 1.00	0.40	4.0	5	0 4	8	23 16	sw.	Wm. Atkin. R. O. Gould.
Battle Creek	Calhoun	822	29	31.8	+4.2	58 57 57 54	1	- 4	27	31	0.88	- 1.58	0.51	4.0	4	4	4	23	nw.	Elmer E. Sager.
Bay City	Bay Benzie	593 832	17 16	33.6	+ 8.0 + 5.1 + 9.0	57	1	5 5	27	26 22	0.68	- 1.86 - 2.50	0.30	3.2 5.2	6	22 11	6	3 9	sw. nw.	Pere Marquette R. R. Wallace Nutting.
BenzoniaBig RapidsBloomingdale	Mecosta	906	17	32.8	+ 9.0	55	1	4	27	22	0.56	- 1.76	0.30		3	1	21	9	SW.	Supt. Waterworks.
adillac	Wexford	1,293	9	30.9		63 51	1 2	4 4	27 27	28 23	0.85		0.70	4.5	5	8	6 3	17	sw.	John M. Haven. Cadillac Water & Light
assapolis	Cass	903	12	*****		550					*****				***	17e	6e	3e	******	. Michigan Central R. R.
harlevoixharlotte	Eaton	610	35	32.4	+ 6.2	57 56	1	-13	11 27	42 38	0.44		0.44	T.	i	19a 11	7a 5	4a 15	sw.	Pere Marquette R. R. City of Charlotte.
heboygan	Cheboygan	611	23 23		******												7		CART	Francis A. Barlow.
lintonoldwater	Branch	984	16	34.1	+ 6.4 + 7.4	58	1	12	27	28 22	1.75	- 0.38 - 1.13	0.99	3.5	6	10 8	5	14	SW.	David Woodward. L. S. & M. S. R. R.
roton		685 730	5 42	32.8	+ 4.8	56 57	1	6 2	22 27 27 27 27	24 26	0.66		0.44	0.5	6	7	18	6	nw. w.	Gr. Rap. Musk. Power U. S. Weather Bureau.
Petroit		799	5	31.60		55 c	2	18 - 1°	27	26°	0. 99	- 1.40	0.42	3.0	2	4 14c	8 20		W.	Chief Train Dispatcher.
ast Tawas	Iosco	590 640	16	32.8	+ 8.1 + 7.8	53 66	5	6	27 28 27 21 27 27 27 27 27	30 27	0.76	- 0.73	0.48	1.0	3 5	15	11 9	5 15	w. nw.	Detroit & Mackinaw Ry. John Gilmore.
ive Channels	Iosco	040	. 0	32.0	T 4.0	54	3	14	28	35	0.37	- 1.13	0.35	T.	2	13	6	12	nw.	Au Sable Electric Co.
lintrankfort	Genessee	730 589	24	33.6		54b	1	12 10	21	90	0.79	- 1.00	0.35	4.0 8.0	5	10	8	13 21	W.	William L. Fisher. Geo. Morency.
anges		665	4	35.1		63	1	10	27	22 28 27	0.85		0.35	7.5	6	8	0 3	20	SW.	H. H. Hutchins.
aylordrand Haven	Otsego	1,367 628	13 42	28.4	+ 6.5	49	2	10	27	27 26	0.92	- 1.16	0.52	4.9	7	14 10	0	17 16	nw.	Michigan Central R. R. U. S. Weather Bureau.
rand Rapids	Kent	707	24	35.1	+ 4.9 + 6.3	62 61	1	11	27 22	26 26 27	0.31	- 2.00 - 2.33	0. 35	2.3	7	6	5 8 7	17	W.	Do.
raperass Lake		625 989	23	33. 1	+ 4.5	57	13	14	22	27	1.08	- 0.95	0.46	2.0	6	7	7	17	W.	Joseph W. Morris. Menzo Conklin.
rayling	Crawford	1, 147	23	29.6	+ 6.7	50	5	- 2	27	28	1.00	- 1.34	0.28	5.3	8	10	1	20	W.	S. N. Insley.
reenvillearbor Beach	Montealm	802 635	25	33.0		60	1	- 1	27 27	25 23	0.56 1.13		0.41	1.0	3 7	18 12	0	13	şw. nw.	Engineer, Waterworks. Pere Marquette R. R.
arrison	Clare	1, 159	20	32. 2	+ 6.2 + 8.8 + 6.9 + 6.5	53 58	2 2	17	27	39	0.62	- 0.67 - 1.26	0.30	10.5	2	19	11	11	W.	Do.
arrisvilleart	Alcona	616 698	29	31.4	+ 6.9	56	2	11	27	29	0. 15	- 2.38	0.10	1.0 2.0	2 3	16	8	7 6	SW.	Mrs. D. W. Mitchell. Pere Marquette R. R.
ayes		620	23	32. 2e	+ 5.0	65 65°	3	12 14 c	26 27†	20	0.69	- 2.01 - 1.25	0.30	4.0	2	17	110	100		C. F. Leipprandt.
ighlandillsdale	Oakland	1,006 1,150	21 16		+ 7.5					200	0.71		0.30	1.5		6h	116	16h		A. D. De Garmo. C. L. Herron.
olland	Ottawa	610	7	35.8	T 4.0	55a 63	1	14	22† 27	28	0.53	- 2.41	0. 21	4.0	4	6 7	17	8	sw.	City of Holland.
loughton Lake	Roscommon	924	21	31.0		50	2	0	22	32	0.40	0.76	0.29	T. 1.2	7		12	12 12	w. nw.	James H. Ostrander. Frank Sharp.
van	Kalkaska		24	29.4	+ 5.6 + 5.5	56 50	2	8	27 27	28 31	0.97	- 0.76 - 1.66	0.69	5.3	4	14	5 16	8	nw.	O. L. Giddings.
ockson		927 667	16 24	33.8	+ 5.5 + 7.3 + 5.2	58 52	2	4	27	29	1.05	- 0.88 - 1.67	0.60	3.0 5.5	5 3	22 11	3 9	6	SW.	City of Jackson. William Bice.
eddoohannesburg	Otsego		0	29.0		51	3 2	- <sup>13</sup>	27† 27	23 27	0.55	- 1.07	0.35	6.5	5	10	14	11 7	nw.	Axel Becker.
alamazoo ansing (Agr. College)	Kalamazoo	955 863	37 49	33.0	+5.2 + 5.0	61	1	- 3 - 5	27	31 27	1.30 0.55	- 1.53 - 1.53	0.80 0.35	13.0	7	6 5	8 7	17 19	W. SW.	Kalamazoo Asylum. U. S. Weather Bureau.
	do	881	26		+ 4.7	55 54	1+		27	32	0. 91	- 1.11	0.32	4.7	7	8	6	17	SW.	State Board of Health.
apeerudington	Lapeer	827 637	14 15		+ 7.5	E7			07		0.54	*******	0.31	1.8	6	10		10	sw.	Michigan Home. U. S. Weather Bureau.
uther	Lake	1,028	3	31.8		57 54	1	11 3	27 27	26 26	0.54	- 1.44	0.31	3.5	7	13	3	16 15	W.	John W. Nichoson.
ackinaw	Cheboygan	592 1, 121	22 17	28.0	+ 4.1	44	2†	5	26	23					****	22a	6a	2ª	nw.	Gr. Rap. & Indiana Ry.
anistee	Manistee	600	16	35.10	+ 7.5	56ª	1	10a	27	19a	0.56	- 1.83	0.21	0.5	40	23a	0a	7a	w.	Postmaster.
arshallidland	Calhoun Midland	896 604	1 14	33.5	+ 7.3	60	··i	-1	26	30	0.02	- 1.46	0.02	0.2	1	10	3	18	nw.	E. B. Stuart. Pere Marquette R. R
orenci	Lenawee	811	6	34.1		58	2	14	22+	25	1.41	- 1.40	0.61	3.0	7	9	0		SW.	George J. Tripp.
ount Clemensount Pleasant	Macomb Isabella	615 826	13 14	33.8	+ 6.8	58	2	12	28	33	0.63	- 1.57	0.30	3.5	3	13	2	16	SW.	Waterworks. Pere Marquette R. R.
uskegon	Muskegon	587	17		******															Gr. Rap. & Indiana Ry.
ld Mission	Grand Traverse Eaton	858 934	19 23	31.0 33.0	+ 4.4 + 6.1	51 56	2	- 8	26 27	23 29	0.77 $0.62$	- 1.18 - 1.88	0.31	2.5	5 5	6 14	14	11	SW.	E. O. Ladd.
mer	Arenac	616	14	33 8	<b>±10.2</b>	59	8	12	25†	44	0.14	- 1.88 - 1.34	0.05	0.5	3	24	5	2	SW.	G. A. Knapp. Detroit & Mackinaw Ry.
nawaywosso	Presque Isle Shiawassee	826 731	10 16	26.6	+ 4.2 + 9.6 + 6.5	50 57	2†	- 5 4	26† 26	39	0.31 $1.27$		0.21	1.0	3 6	10	12 18	9	w. nw.	Do. Owosso Sugar Co.
atoskev	Emmet	660	23	32.3	+ 6.5	50	1+	5	26	24	0.54	- 1.34 - 0.37 - 1.98 - 1.52 - 0.89 - 1.53 - 1.02 - 1.57 - 1.13 - 1.23	0.16	5.4	5	13	6	12	W.	Gr. Rap. & Indiana Ry.
ymouth	WayneOakland	725 935	16 13	33. 4	+ 5.7 + 3.7	57 55a	1	10 12a	28 27†	28 25a	0.11	- 1.52 - 1.52	0.10	0. 1 5. 0	2 4	11 7a	5 10a	15 13a	W. SW.	Pere Marquette R. R. Fred W. Shaw.
ort Austin	Huron	618	16	33. 2	+ 6.3 + 5.7	56	2	12	28	25	0.26	- 0.89	0.10	2.0	3	13	3	15	SW.	Pere Marquette R. R.
ort Huroneed City	St. Clair	639 1,033	38 16	33.0	+ 5.7 + 8.6	55 55	12	16 11	28 28 26 27	25 26 27	0.64	- 1.53	0.37	3.8	6 5	5 20	10	16 11	sw. nw.	U. S. Weather Bureau. Osceola Light & Power C
oscommon	Roscommon	1,141	12	28.44	+ 6.4	56a	14	- 5a	27	442	0.18	- 1.57	0.05	1.8	4n	5a	16a	9a	nw.	Marcus Schaaf.
ginaw, East Side	Saginawdo	601 641	11 18	29 9	+ 5.5	55 52	1 2	1	27	25	1.29	- 1.13	0.50	3.2	6 5	13	15	3 18	nw.	Postmaster.
James	Charlevoix	681	7	33.0		49n	2†	16	31	30ª	0.57		0.52	T.	2	12	10	9	SW.	U. S. Weather Bureau. Rev. Edward A. Jewell.
. Josephndusky	Berrien	593 790	26 4		+ 4.6	65 59	1	15 10	27 28 27 27	29 25 30	$0.52 \\ 0.26$	- 2.47	0.40	4.5	3	9	7	20 13	SW.	City of St. Joseph.
ranac	Ionia	639	18 17	33.4	+ 5.9	58	1+	- 5	27	30	0.84	- 1.25 - 2.67	0.54	2.0	3 2	9	1	21	SW.	Pere Marquette R. R. John Wallington.
uth Haven	Van Buren Lapeer	585 975	17 36	36.2	+ 8.3	65	1	9	27	20	0.30	- 2.67	0.20	2.0	2	11	5	15	ne.	Capt. James S. Donahue. J. S. Caulkins.
raverse City	Grand Traverse	588	16		+11.9	59	19	170	23	350	0.40	- 2.08	0.30	4.0	2	19	6	6		Gr. Rap. & Indiana Rv.
assarasepi	Tuscola St. Joseph	641 842	12 16	35.0	+ 8.9 + 8.1	58 59	. 1	$-\frac{3}{2}$	27 27	36	1.38	- 0.17 - 1.92	0.60	7.5 5.0	4	6 14	11 0	14 17	SW.	Pere Marquette R. R. Charles A. Palmer. Au Sable Electric Co.
eber Dam	Ionia		0	33.0	T 0.1	58	3	10	27	23	0.89	1.32	0.45	5.0	3	11	10	10	SW.	Au Sable Electric Co.
est Branch	Washtenaw	973 736	8 28	33. 2 33. 2	+ 6.4	54 57	2†	- 2 15	26 28	36 28	0.70 1.27	- 1.21	0.35 0.50	1.0 5.0	3 5	15	18	14	nw. sw.	Michigan Central R. R. Orin J. Bemiss.
Ohio.	Summit	1,081	26		+ 3.5	59	1	13	28	30	1.88	- 0.70	0.77	7.0	9	5	3	23	s.	Prof. C. R. Olin. North G. Osborn.
ntwerpenton Ridge	Paulding	733 800	1 20	34.7		62 62	1	12 16	23 27	29 32	1 31	_ 1 32			7	13	0 5	18 18	nw.	North G. Osborn. J. W. Powell.
owling Green	Wood	670	32	31.9	+ 4.9 + 3.4	58	2	10	28	32 28	1.31 0.67	-1.32 $-2.50$	0.50	2.3 1.0	6	8 5	10	16	SW.	G. C. Houskeeper.
DCVTUS	Crawford	1.000	19 42	32.6	+ 3.5	58	1+	10 16	9	26	0.82	- 2.50 - 1.77 - 1.20	0.22	4.0	4	10	1	20	W.	James R. Hopley.
lamater d do	Cuyahogado	754	16	25 2	+ 4.2 + 5.9	56 56	2	16	28 28	29	1.00	- 1.20	0.42	5.9	12	6	2	23	S. SW.	U. S. Weather Bureau. Rev. F. L. Odenbach, S.

TABLE 1.—Climatological data for December, 1913. District No. 4—Continued.

			year	Temp	erature	, in c	degre	es Fab	renh	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	day	Number of eloudy days.	Prevailing wind ction.	Observers.
Ohio-Continued.																				
onneaut. Indlay. Indla	Hancock Sandusky Paulding Lake Portage Summit Allen Medina Williams Henry Auglaize Cuyahoga Huron Lorain Putnam Erie Seneca Lucas Wyandot Sandusky Auglaize Fulton	- 776 - 776 - 725 - 997 - 1,260 - 1,123 - 875 - 880 - 1,038 - 1,000 - 719 - 720 - 720 - 750 - 769 - 769 - 788 - 888 - 88	3 24 11 19 20 33 52 21 26 20 20 20 27 38 20 36 31 42 30 20 11 11 11 11 11 11 11 11 11 11 11 11 11	33. 2 33. 2 34. 4 34. 6 32. 8 34. 2 35. 1 33. 2 35. 2 35. 2 35. 2 35. 2 35. 4 36. 2 37. 4 38. 6 38. 8	+ 3.9 + 5.7 + 6.8 + 4.3 + 4.0 + 6.9 + 6.4 + 4.9 + 4.8 + 4.2 + 3.3 + 3.5 + 4.1 + 3.8 + 4.2 + 3.8 + 5.3 + 3.9	53 61 58 61 55 52 57 61 57 57 59 64 56 62 57 62 59 61 58 58 55	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	11 15 13 13 5 10 9 16 3 14 15 6 9 7 7 7 15 16 15 14 10 12 14	27 22† 28 22† 28 28 22 21† 27 28 22 22 28 22 22 28 22 22 28 22 22 28 22 22	29 28 25 36 26 24 33 30 26 34 30 27 29 29 27 27 27 27 27 27 27 27 27 27 27 27 27	$\begin{array}{c} 0.93 \\ 0.35 \\ 1.14 \\ 1.28 \\ 1.23 \\ 2.38 \\ 0.35 \\ 1.34 \\ 0.46 \\ 1.60 \\ 1.74 \\ 1.26 \\ 1.09 \\ 0.83 \\ 1.07 \\ 0.95 \\ 1.73 \\ 1.07 \\ 0.95 \\ 1.73 \\ 1.15 \end{array}$		0. 28 0. 24 0. 43 0. 82 0. 34 0. 52 0. 30 0. 22 0. 23 0. 22 0. 45 0. 30 0. 27 0. 45 0. 30 0. 27 0. 45 0. 30 0.	5.0 1.0 3.6 1.0 4.5 15.0 7.0 4.0 7.0 9.0 7.1 1.3 3.7 4.2 1.9 5.0 2.1 2.5 2.9	8 3 7 6 8 9 10 2 7 7 5 2 2 8 9 9 8 7 7 7 8 6 7 7 9 9 11 7	3 11 8 9 10 7 7 10 9 11 7 8 9 11 7 8 9 10 7 7 6 6 7 6 6 7 6 6 7 6 6 7 6 7 6 7 6	3 6 3 5 9 8 8 9 4 0 12 8 9 4 9 4 9 13 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	25 14 20 15 16 16 15 14 12 19 20 21 10 12 11 15 19 13 22 10 21 11 15 15 15 16 17 17 19 20 21 15 16 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	SW.	E. L. Ransom. Dr. E. A. Moser. E. Stanley Thomas. Charles Stutzman. J. W. Domeaster. Prof. G. H. Colton. Dr. W. I. Chamberlain, Miss Ollie De Long. F. W. Clark. G. L. Laser. A. C. Senter. Miss Lillian Grothaus. W. S. Edgerton. Giles R. Gregory. Prof. F. F. Jewett. Prof. J. T. Maidlow. U. S. Weather Bureau. Prof. T. H. Sonnedecke U. S. Weather Bureau. Robert E. Tracht. John W. Barr. Dr. William Kayser. Thomas Mikesell. C. M. Richardson.
Pennsylvania.	Erie	658	40	35.0	+ 3.3	53	2	15	28	31	1.07	- 1.99	0.39	5.7	9	3	5	23	sw.	U. S. Weather Bureau.
New York.	Jefferson		22	32.7	+ 8.9	52	7†	- 6	27	32	2.56	- 1.41	0.60	15.0	10	14	9	8	3.	A. E. Cooley.
ngelica ppelica ppelica ppoleton uburn von rockport uffalo nisius College inton nape Vincent nazy nestnut Lawn annemora lba abriels abriels eneva arkness emlock Lake unt haca eene Valley ing Ferry ake George ake Placid Club auterbrunnen ockport owville oira ehasane orth Lake gdensburg id Forge swego tto lelermo stry City hiladelphia otsdam anger School aquette Lake ochester omulus nortsville caneateles ryacuse upper Lake olusia attrown edgwood	Niagara Cayuga Livingston Monroe Erie do St. Lawrence Jefferson Clinton Wyoming Clinton Genesee Onondaga Franklin Ontario Clinton Livingston do Tompkins Essex Cayuga Warren Essex Wyoming Niagara Lewis Franklin Hamilton Herkimer Oswego Schuyler Jefferson St. Lawrence do Hamilton Monroe Seneca Onondaga Franklin Chautauqua St. Lawrence Jefferson St. Lawrence Seneca Ontario Onondaga	270 715 585 767 787 448 1246 1246 1349 1490 500 1,729 622 622 622 622 622 622 622 622 622 6	30 224 44 18 17 62 0 19 8 8 13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	32. 6 34. 5 32. 2 33. 6 34. 5 32. 2 33. 6 33. 4 5 32. 2 33. 6 6 33. 4 5 32. 8 32. 6 33. 4 5 32. 8 32.	+ 3.3 + 4.6 + 5.8 + 5.7 + 4.8 + 3.5 + 4.3 + 8.1 + 4.6 + 6.1 + 7.8 + 6.0 + 4.2 + 9.9 + 6.6 + 4.3 + 7.2 + 3.6 + 4.1 + 4.1 + 4.9 + 3.7 + 4.8 + 4.8	500 566 533 544 555 552 560 564 564 564 565 565 565 560 560 560 560 560	77 77 77 77 77 77 77 77 77 77 77 77 77	-100 4 13 3 -4 100 8 -6 6 -12 -6 6 -12 -6 6 -5 3 -11 -8 -12 -15 -15 -15 -15 -15 -16 -17 -15 -17 -17 -17 -18 -18 -19 -10 -10 -10 -10 -10 -10 -10 -10 -10 -10	27 27 28 28 27 27 27 27 27 28 27 27 28 27 27 27 27 27 27 27 27 27 27 27 27 27	28 22 23 55 27 28 31 27 28 34 44 46 37 31 32 29 35 34 34 44 46 37 31 32 29 35 35 34 33 34 32 34 30 33 34 37 28 34 31 37	1. 60 1. 87 1. 10 1. 84 1. 12 1. 14 2. 51 1. 17 3. 27 3. 29 2. 42 2. 42 2. 51 1. 19 1. 49 2. 42 2. 42 2. 51 1. 19 2. 42 2. 42	+ 0.61 - 1.71 - 1.73 - 0.35 - 0.39 - 0.77 - 0.08 - 0.25 - 1.54 - 1.31 - 0.49	0. 60 0. 83 1. 50 0. 90 0. 60 0. 15 0. 58 1. 30 0. 42 0. 72 0. 70 1. 12 0. 80 0. 90 0. 65 0. 73 0. 50 0. 73 0. 70 0. 70 0. 70 0. 90 0. 90 0. 90 0. 90 0. 90 0. 90 0. 15 0. 15	33. 9 25. 3 28. 5 7. 8 14. 0 15. 3 12. 5 29. 5 30. 6 14. 4 3. 9 12. 2 15. 9	14 6 3 11 12 8 8 5 18 8 4 4 7 18 8 16 11 10 10 10 11 6 6 11 11 12 18 18 18 18 18 18 18 18 19 10 10 10 10 10 10 10 10 10 10	6 5 5 7 5 10 4 4 6 6 6 7 7 5 10 4 4 6 6 6 7 7 2 13 3 9 9 9 7 7 23 8 8 8 8 8 8 8 8 8 8 11 1 2 8 8 8 3 11 1 2 8 8 3 1 1 1 4 5 5	9 9 8 7 9 9 9 6 8 8 6 6 6 6 8 8 10 3	23 117 15 18 14 18 16 19 16 23 12 11 14 20 20 17 11 11 11 16 16 23 17 11 11 11 11 11 11 11 11 11 11 11 11	W. S.	C. P. Arnold. H. A. Van Wagoner. J. W. Ackerman. W. G. Markham. C. O. Beaman. U. S. Weather Bureau. M. T. Ahern, S. J. U. S. Weather Bureau. J. H. Grapotte. W. R. North. Charles Peterson. Dr. D. L. Van Derzee. Joseph S. Wilford. Dana H. Wells. Gabriels Sanitarium. Agri. Exp. Station. J. W. Harkness. B. P. McGrady. W. S. Barager. U. S. Weather Bureau. E. R. Wells. L. A. Goodyear. Chas. Forsall. H. Van Hoevenberg. J. O. Howard. R. N. Clark, Prof. W. F. H. Breeze. C. E. McBride. L. W. Brown. J. F. Redmond. State Hospital. Mrs. S. W. Nelson. U. S. Weather Bureau. W. J. Winke. W. H. Jeffers. E. D. Babcock. A. E. Sutherland. Prof. R. P. Prichard. R. J. Dunning. U. S. Weather Bureau. John H. Coryell. C. H. Latting. John Durkan. U. S. Weather Bureau. Rev. A. W. Maddox. Benjamin Breads. Prof. R. P. Prichard. C. B. Parsons. O. F. Corwin. John R. Rogers. M. N. Stewart.
Vermont.  prington.  prowall.  posburg Falls.  yde Park.  prthfield.	Addison	517 601 576	5 19 21 1 26	28.0 25.4 25.5	+ 4.5 + 2.6 + 3.1 + 2.8	45 47 48 50 49	17 5 8 17 14	- 5 - 5 -15 -18 -16	28 27 28 28 28 28 27	27 27 34 35 34 30	2.20 2.41	- 0.08 + 0.93 - 0.92 + 0.53	0. 52 1. 00 0. 46 0. 75 0. 85	35. 5 24. 5 30. 0	13 15 12 12	4 9 6 4 6 6	8 5 4 6 7	19 17 21 21 18 14	8. 8. W. n.	U. S. Weather Bureau. C. H. Lane. L. H. Pomeroy. A. V. Wiswell. U. S. Weather Bureau. E. R. Pember.

<sup>\*,</sup> b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

# Table 2.—Daily precipitation for December, 1913. District No. 4, Lake Region.

Stations.	Watershed.		,	-	,					,						Jay I	of mo	JH CH										,			,		1
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Minnesota.																																	
oquet	L. Superior .		T.																							T.		. 25					. 0
oquet	do		T.					T.													T.	T.			T.	.01		.11					. 0
and Marais	dO							T				****		***							T	****			Ť			15	****				: 0
o Harbors	do																											.05					
ginia	do							T.														T.			T.	. 20							- (
Wisconsin.				1																													
pleton	Fox	. 15					. 28	.04													T.					T		.01					-
field			1					T.													T.					T.		.08			****		
1	Fox						T.	T.										T.										T.		****			-
nucopia	L. Superior																																
ndon	Menomonee.							T													T			****		****	****	T.					
d dn Lac	Fox	20		1		1	9.4	11													13721							1 1					
nd River Locks. en Bayh Falls	do	.08	T.				. 16	. 12													. 10							****		****			-
en Bay	L. Michigan.	. 04					.37	.01													. 02	m.	****	****		T.		. 02	T.	****		****	-
h Falls	L. Superior	.00			***	****	****	.00	****			****		****	****		****				1.	1.			****	A.		.00	****			****	1
raunee	L. Michigan.	. 24					. 17	.14													T.	****						****	T.				
itowoc	do						. 24								0000						. 02					1		T.				. 02	
ashaomonee Falls	Fox L. Michigan.	.02	10				. 24	T.													T.						T.		. 02				-
vaukee	do	. 02	T.				. 03	. 02													T.					T.			.01				-
London	Fox	. 15					.30																					T.					-
ntokosh	L. Michigan. Fox		70				T.		T												T.			****	****	****	****	T.	****			· · · ·	-
														0000	0000								* * * * *		* * * *								
River n Island nouth Washington ine Doygan geon Bay erior II	L. Michigan.	. 03	. 05																		T.					T.							-
nouth	do	. 24	. 03				. 26	. 10													T.				****			****	T.				
ine	do	. 20	T				. 05	T. 10														****	****	T	****	T	****	T	T.	- * * * *			-
on	Fox	. 26	.03				.17	. 21													T.							*	.01			T.	
boygan	L. Michigan.	. 51.	T.				. 09	T.													T.			T.			T.		T.				-
geon Bay	L. Superior .	. 22	. 03				. 07	T.													T.				****		01	.01	00		****		
erior							. 11																****		****	****	.01	T.					
Illinois.				-		-	1																****										
ago	L. Michigan.	04					02	00													01			. 29	Т								
hland Park	do	T.					. 11														T.		****		Ť.		****						-
Indiana.						1																			9								
urn	Maumee	.76							.11													T.		T.	T.	T.	T.						
ne		.02					.06	. 10	T.												. 01			. 13	T.	. 10	. 06	****					
t Wayne	I. Michigan	.01	100	The second		1	- 115	. 15	100								T.				.09 T.	T.		36	.01	.01	***	****	T.				-
re []	L. Michigan. St. Joseph do	. 58	.03		. 04			. 15	.09	***											1.	.05	****	.00		****	****						
re Dame	do	.11					T.	. 40	.30												T.	T.	****	. 33				****					-
iting	L. Michigan.	.07						T.		****	****		****	****		****				****	****		****	. 20		****	****			****		****	-
ichigan— Upper Peninsula.																																	
agagland	L. Superior.	. 20						. 20													. 10						***					***	1
met	Ontonagon L. Superior.							.02										T.			.16	T.				.08		T.	.06	T.		T.	
tham	OD	. 02	.01					. 20										. 50			. 05	. 05				. 05		. 02					
Park	do	***				****	****	T	****		****	* * * *		****	* * * *	****	T	***		****	T		***		****		***			****		****	1
le Harbor	L. Michigan.	.03			****	****	.03	.14	****	****				****		****	1.	T.			.08					T.		. 03	T.			T.	
n	Ontonagon	T.	T.					.41										T.			.10	.11	T.			.10		T.	.10				-
nd Marais	L. Superior.	T.	.01			75	****	. 20				****		***				700	****		T.	m			***	T.	***	.03		T.	T.	T.	
ghton	Escanaha	T			****	I.	****	20	****		****		****	****		****		1.		****	.10	1.	****			,10		T.	T.				
Mountain	L. Michigan. Ontonagon. L. Superior. do Escanaba Menominee	.03						T.							****			****		2000	. 00			222	***	212	Lones	. 192					-
Kiver		T.		· · · ·			****	- 10	.10	T.								****		.10	T. T.				***			T.	T.			****	
woodeming	L. Superior. Escanaba	4						.32	01	***				***	****		****	T			T.	T.	***	****	****	01	'mi	T.	****	****		199	
Royale	L. Superior	1																								1			***				
kinac Island	Lake Huron.																																
le Ridge	Lake Huron. L. Michigan. L. Superior. Menominee.	.40	700					.30				x -				× + × +			780	***	.30					.10	· m	· m	T.	Tr.	m		4
quetteominee	Menominee	0.51		1			the l			****		****	****		****	****	****	Ι.	T.		.31 T	.01	****			.03	T.	T.	T.	T.	T.	. 04	4
using	L. Superior	.09	.04				T.	. 00	.09									.02	.01		.07	.01				T.			.02			.02	2
berry	Tequamenon	.06	.01					. 28	.10							***		.08		т.	. 05		****					T.	.02			T.	
onagon	L. Superior				***	****	****	T.		****		***	****		***	x - x -				1 1		200						1 .1	1	T.			-
gnace	Lake Huron	T	T	***		****		05	30		****	***	****	****	****	****	****	***	****		T			***!	****	***!			20		***		
t Ste. Marie	L. Michigan. Lake Huron. St. Marys Manistique L. Superior	.09	.06				.08	.09			T.							.01			.10	T.						.02	T.	T.			-
y	Manistique	.07						. 40	.10							***		T.			T.					T.			. 05				-
																						****	***	. 10		· m	00		****	* * *			
tersmeetterish Point	Ontonagondo	.06	.02	T.		****	T.	.10	T.												.01	T.	T.			. 02		T.	. 02	***			-
ichigan—Lower	D. Superior	.01	.04	.01	****		****	. 22				****	****	****	****	***		***		***	. 13	*	***	****	****		***		.00			****	1
Peninsula.	Doleta	0.0					**	m																90									
ian	Raisin Kalamazoo	.86					.11	T.	.14										***		T			30					×-×-	****			-
	OOZSHIBISAL	.19	****			****	T	.19	.06												1.			.32			T.		115				
gan	Saginaw	.30					- A - C	- 40	.00		CON.	10000	0.000									0.000	000	- 0-0	2000	1 000	1000		1 -	(70)	1	T	1
gan naena	Saginaw Lake Huron.	.09	T.				-11	. 20	.03		T.		***					T.	.01		. U4	x - x -		.06		T.	T.		T.	T.	T.	A .	1.5
gan		.09	T.				.06	.20	.03		T.	****	****			T.		T.	.01		T.	T	****	.32		T.		1	T.		Т.		

Table 2.—Daily precipitation for December, 1913. District No. 4—Continued.

Stations.	Watershed.			1	1			1	1	1			,			Day	of m	onth															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Michigan—Lower Peninsula—Con.																																- 1	1
attle Creek	Kalamazoo	. 51	T.					. 05	T.						-							T.	- 1	10	90	m			-	_			1
ny City	Saginaw Betsey	. 30					.00	6 .01											T.		.01	4.		.10		T.			T.	T.			-
Rapids	Muskegon	.30					. 20		.30										T.		.12					T.			. 05				
oomingdale	L. Michigan.	T.					T.		T.												T.			.08					T.	T.			-
sopolis	Manistee St. Joseph		.11					. 19													. 10								. 05				-
arlevoix	L. Michigan. Kalamazoo	. 44																				****			****								-
boygan	Chebovgan.						1																	T.									1
dwater	Raisin St. Joseph	. 99					.11															T.		.35							1		1
ton	Muskegon	. 44	T.				.00	. 21	T.												T.	. 02		. 30				T.					-
roit	Detroit Saginaw	. 31	T.				. 03	.18	. 04										T.		T.			.42			T.	T.	T.				-
t Tawas	Lake Huron.	. 48	. 41 T.				.20														T.			. 30					T.				
e Channels	Rouge	. 54					. 03	3 .15	. 03													T.		.08					T.	T			•
at	Au Sable Saginaw	. 35			1			T.	T.												T.			T.									
nkfort	Betsey	. 10						. 30													.20			. 27			. 20		. 10				1
lord	L. Michigan. Cheboygan.	. 06	. 02 T.			1	T.	.30		T.									70		.02			. 35					T.				-
nd Haven	Grand	. 01	. 01				. 01	. 35													.03 T.			.10				.01	.02				-
nd Rapids	Raisin	. 40	T.		T.		. 02	.14											T.		.01	783		.10	T.	T.	T.	T.	.02				
ss Lakevling	Grand															****			1.		****	T.		.46				• • • • •		****			-
en ville	Au Sable Grand	. 15		Т.	****	****	. 05	.28 T.										****			.09	.06		.03		T.		T.	.06				
bor Beach	Lake Huron.	. 08						. 20	.30										.20		T.			.10				• • • •	T.			••••	-
risville	Saginaw Lake Huron.	. 47	• • • •					. 10																									
t	Pentwater						.24	. 15													.30		• • • •										-
reshland	Pigeon	T.	T.					. 20													T.					. 20					****		
sdale	St. Joseph	. 25					.01		. 10										• • • •	• • • •		• • • • •			30					• • • •			
land ighton Lake	L. Michigan. Au Sable	.11	T.				.01	.20	T.	T.	m.	-m									T.			.21					T.				1
well	Saginaw	. 69	. 01	. 01			. 02	. 13	. 06			1.					T.							.05	T.								-
n	Manistee Grand	. 10					. 02	. 90	. 10										T.		.02								T.		****		
io	St. Clair	T.	T.				T.	. 05	. 15	1		1		1						• • • •	T.			.20				• • • •				m	-
annesburg	Cheboygan Kalamazoo	.28	T. T.					. 10	. 35	1		1		1					T.		. 10	T.					T.		.10			1.	
sing (Agr. Col.).	Grand		. 03					.09													T.			.50	.01		••••		T.				-
sing (capitol)	do Saginaw	.32	. 08					. 07	. 02													. 02		. 13	.27	T.			T.				1
lington	Pere Mar-	.11	T.				. 18	. 16	.01										T.		.04					т.							
her	quette. Manistee	. 15	. 02	T.			.02											-				****	****					****	. 04	****			1
kinaw	Lake Huron.	.20					.02														. 04			T.					. 05				
icelona	L. Michigan. Manistee	.21		• • • •			15																										
shall	Kalamazoo						. 10	. 15													****					****			. 05				
landenci	Saginaw Maumee	T.						T.													T.			.02							****		
nt Clemens	Clinton	.03					T.	. 10	T.													. 05		. 54			. 03						
nt Pleasant	Saginaw Muskegon																	0000												****			
Mission	L. Michigan.	.24						.31	. 00												.10												
et	Kalamazoo Lake Huron.	. 25	. 01				T.	. 03								1			- 1	-	.02			.31				T.	T.	****	****	****	1
way	Cheboygan	. 21					.00	T.								• • • •	****				. 05			.04									
ossooskey	Saginaw	. 62	. 10						. 10					. 05						.30	. 00								.00		****	• • • •	
mouth	Rouge	. 10					. 16 T.	. 10	.08	****								****						.01									
tiac Austin	Clinton	. 40	. 04				T.	. 20									T.				T.			. 40	****					****	:		1
Huron	St. Clair	. 02	. 01	T.			.04	. 33	.01		T.						T		781		T.			. 10									
d City	Muskegon Au Sable	. 28	.02					. 18													. 03			.23		T.	T.		.02	• • • •	****	T.	1
naw, East Side. naw, West Side.	Saginaw	. 36	. 05	.02			T.	.50	****	****	****	****	****		****		****				.05			. 03					. 05				
naw, West Side.	do	. 17					T.	. 18												****	. 01			.30	.01	T.	T.	T.	T. T.			****	1
oseph	St. Joseph																				T.							T.	T.		T.		
	Lake Huron.	. 06 .						1										- 1				****		. 20						****		••••	
h Haven	Grand L. Michigan.	. 10					••••	. 450									- 1	- 1			70			. 20									
rnville	Saginaw															- 1		- 0	1	-	T.			. 20					T.			****	1
ar.	L. Michigan Lake Huron .	9.6						. 30	****	****											. 10												
epi er Dam	St. Joseph	.38						.10	. 10								****		****					. 60				DIL					1
t Branch	St. Joseph Grand Lake Huron.	. 35		T			. 05	30																. 40	!								-11
lanti	Huron	. 37	.02				. 11	.30	T.															. UO				T.					
Ohio.																												10					
on   werp	Lake Erie Maumee	.11						.06	.13	.30		T.	T.									.11	T.	.17	.16	T.	.77	T.					
ton Ridge	do	.28	T.	. 05				.03	.10																								
ling Green	Lake Erie	20		- 03			. 02																	.30		.05							1
eland (1)		. 22	.01	.01			.13	T.	T.										T			00		. 20	T.	. 20	. 20				250		1
eland (2)	do	. 08	L				.11	.37	.08		T.					***		****	T			.09		. 28	. 02	.26	.04	****			****		
neaut		. 05 .					T.	.20	. 07		T.											. 05		.18									
nont	Sandusky	.43 .					. 03	T.	.07					****										ii.	T. 1	.10							11
ges	Maumee	82			.02		. 04	.09	.10		· · · ·															. 00							1
		.13	1.	T. T.			.05	.30	. 05		T.	Т.							T.			.03 .12 .02	T.	34	OF	m	00			-			

TABLE 2.—Daily precipitation for December, 1913. District No. 4—Continued.

Stations.	Watershed.	_													1	ay o	f mo	nth.															
Stations.	watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
hio-Continued.																-																	
ma	Maumee			T.			T.	T.																.30	. 05	T.							0.
edina	Lake Erie	.10					T.	. 25	.20													.09		.30			.30						1.
ontpelier	Maumee							.10														. 10		. 22	T.	T.							0.
apoleon	do																						. 23	. 20									0.
w Bremen	do	.12		T.				. 05	. 03													. 04		.09	.02	. 10							0.
orth Royalton	Lake Erie	.08					. 05	. 10	. 20													. 27		. 45	. 05	. 20							1.
orwalk	do	.11			****		. 03	.22	.20		T.											. 30		. 30	.03	.35							1.
tawa	Maumee	45		. 05			03	.05			1.											70		. 32	.03	.15							1.
ndusky	Lake Erie	.12		.00			.04				T.			****				T.				.04		.33		. 23		T.					0
ffin	Sandusky	.20		.04			T.	. 03	. 20													.07		.30	T.	. 13	.10						1
oledo	Maumee	.12		T.			. 03	.13	.06															. 51	T.	.10							0
pper Sandusky	Sandusky		.15	T.				.15	.27														T.		. 20								1
ckery	Lake Erie	.10					. 05	.01	.01															. 24		. 16							0
apakoneta	Maumee						.01	. 05														.04				.08							0
801800n	Take Ewie	. 16				. 02		.09	.02									. 02			. 01					. 02	T.		T.	****			0
ickliffe [ ]	Lake Erie	. 16	T.	T.			T.	.10	1.		. 10									****		.04		.31		. 10	. 20	****					1
Pennsylvania.																																	-
le	Lake Erie	T.	T.		T.	T.	.06	. 23	.07		.05	T.							T.			.05		. 17	. 05	.11	. 28				T.		1
New York.																																	
lams Center	L. Ontario				. 13						.40		T.						.10						. 13		. 60						2
igelica					· · · · ·			.09				. 13							T.	. 05	(30		.02		.01	700	. 68					T.	1
pletonburn.					T.			. 03		****	.02	T.							T.		T.			. 68	T.	T.	. 50					T.	2
on	A			.00	.10	****		.16	. 13		T.	16										10		. 26	. 34		. 45						1
ockport					T.			. 25	.15		T.	23												.37	.11		1.16						2
ffalo						0000	T.	.11	. 29	T.	.07	.03		****					ma		T.	.01		. 51	T.	. 05			T.	T.	T.	T.	li
isius College	do			T.				.20			. 24	.14			1				COS	****				. 62	T.		. 26				T.		11
ton	Grass	. 05		. 24	.07	T.		. 29			.06	.06			T.		. 03	. 01	0.4			.01		.40		T.	. 45		T.		, 06	T.	2
oe Vincent	St. Lawrence							.47			. 58													. 94			. 24						1 3
My	Champlain	.12		.12	T.			.14	.30			.10													1.00			. 50					1
stnut Lawn	Genesee							. 21	. 05		T.								.02		T.	. 02		. 43	. 02	T.	. 84				T.		1
nemora	Champlain	. 05		. 25	.07			. 20			.10	690										T.		TD.	.06	.87		T.	.02			. 25	
etteville	L. Ontario			T.	T.			. 20			T.	T.					783		.02		T.	T.	T	. 28	T.	T. T.	.60	.02			rm.		1
oriels			.18				. 23	. 21			.02	.02			T	T.	T.	.11			.05		T.	.40	. 64	.14		.02			1.	06	1
16V8	Oswego		. 10				. 20	. 180				.00			4.	L.	.00				.00			. 20		. 7.8	. 10		.00			. 00	1.
		.04		.03			.13	.10						T.			****	T.					T.	.42		.27					T.		1
nt	Genesee							. 16																. 52			.80						1
aca			T.					.17											.10			.09		. 51	. 05	. 30	. 57	T.			T.		
ne Valley	Au Sable				. 09			. 33							. 03		. 04		. 03		.04			. 43	. 42		. 52				.09	. 04	1 3
g Ferry				.02				. 19	. 24										.07			. 07		. 52			. 57						
e George	Champlain							1.20	. 42			****							T.					. 43			. 86			T.	T.	T.	
e Placid Club					. 25			. 11	. 65		. 25 T.	. 50				T.		. 05	. 15	. 05	.12		200	. 25	.30	T.	. 45				. 05		
kport	Genesee			10				. 26	.04 T.		T.	.03										. 05			.07	T. T.	. 50						
wville	L. Ontario Black			. 1.6				. 17	1.		1.	1.												. 95		1.	. 23						
ra	St. Lawrence	. 46		.36	.10	****	T	****	.60	****					****		T.	T.	.10	****	***		****	.50			.30			****	****	****	1
asane	Black	. 02		.10				.37			. 26						. 07	. 06		.02		.12			. 25	T.					.12	. 04	
th Lake	do																											****			****		
lensburg	St. Lawrence	T.	T.	. 27	.05						. 13	.14			T.			T.	T.					T.							T.	T.	1
Forge	Black			.15				.62			. 09	. 23							.17		T.	.10		. 28	. 30		. 50				.09	.04	
ego	L. Ontario			T.	.04			. 51	.04		.06									T.				. 51		.02	. 58	T.	T.		T.	. 01	
D	Lake Erie				FIR	.16		.09	. 15	.06	.03 T.					. 06		06		T.	T.	.02		.11	T.	T.	. 27	.31				T	1
rmory City	L. Ontario			.02	.02	. 10		.30		. 02	T.	120	. 03					.06	.10		1.	.04	.10	.31				. 01				1.	1
ladelphia	Oswego St. Lawrence	T		. 05				. 33			. 09	24					. 03		.05			. 04	. 10	. 33			.42				.02	T	
sdam	Raquette			. 00	.01			. 90	.01		. 00						.00							.00	. 10	.01	. 4.0				. 04	* .	1.
ger School	Oswego			. 25	. 26	.04		.37	.72		.18	.04			.01		.02	. 05	.03	T.		.08	T.	. 08	. 20	.02	.40	T.	T.		.11	.05	
	Raquette	.08		. 06	. 18			.45	.60		. 26	.12							T.	.14		. 21			.70		. 65				.09	. 08	1
hester	Genesee			T.	. 01			.17	.15		. 10	. 33							.17			.01 T.		. 42	. 01	. 18	. 94				T.	T.	
nulus	Oswego								.11		T.	.10							.10		T.	T.		. 32	. 02		. 80						1
rtsville	do							. 26	.08			.12							. 12														
neateles	do																T.		.06			T.		****		****						****	
per Lake	Raquette			. 01	. 02			. 20			. 05	. 01									T.	T.		. 44	T.	. 15	1.35	T.			T.	T.	1
per Lake	Lake Frie			m.				57	07		nn.								·m			· cp		.17	00		65						-
isia	Lake Erie Oswegatchie			90	20			. 57	72		T.							007	T.	T		07	T	.17	26	00	50	T	TP		10	. 05	
ertown	Black			. 25	200	.03		. 39	47		15	.00			. 02		.02	.07	10	A.	T.	.07	Т.	99	. 30	7	. 50	Lo	T		T.	T.	1
dgwood	Oswego			. 02				. 15	. 23		. 05	.12							T	т.		.11	.02	. 28	.20		1.07				T.		
stfield				. 00		T.		.40	.09		. 00								.02	1.		.16	T.	. 36	. 14	T.	. 29						
k	Genesee			.06	T.			.49	.10		T.	T.			.10		T.					. 07		. 25	. 03	T.	. 68				T.		1
Vermont.																																	-
lington	Champlain	. 02	T.	. 14	. 08			.11	.31		. 02	.08			. 03	T.	T.		T.		T.		T.	. 52	T.	T.	. 27			T.	T.	. 03	
nwallosburg Falls	do	.12		. 10	. 05		.02	. 45	1.00			.15			. 02				.02					.10	.36	T.	. 75					. 05	
sourg Falls	do	.06		.34	. 08			. 20	. 46		. 05	.04			. 03		T.	. 01	.03			. 03			.40	. 01	. 24				. 07	T.	13
de Park	do	. 07		. 20	. 07			.40	. 25		. 05	. 05				. 02			.02			. 02										T. T.	100

<sup>Precipitation included in that of the next measurement.
Separate dates of falls not recorded.
Precipitation for the 24 hours ending on the morning when it is measured.
Precipitation is less than 0.01 inch rain or melted snow.</sup> 

Wisconsin.

Lower Michigan.

Table 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 4, Lake Region.

Upper Michigan.

									CIL L		Fo	rt																
Date.	Min	uth, nn.	Flor	ence.	Green	Bay.	Milwa	ukee.	Chic		Way	ne.	Escar	aba.	Ew	en.	Houg	hton.	Marq	uette.	Sault		Alpe	ana.	Bat		Cadil	lec.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.																		
1 2 3 4 5	38 46 45 46 52	36 32 31 32 35	40 45 47 54 53	34 35 30 33 34	42 47 44 51 52	40 41 37 35 35	49 49 47 53 48	43 44 42 39 39	56 52 48 57 46	48 46 43 41 38	59 56 51 54 47	50 50 39 37 37	41 43 40 56 52	38 36 32 34 33	40 44 41 51 51	35 33 28 32 29	41 42 43 46 42	38 37 36 39 31	40 42 43 55 50	39 38 36 38 37	42 42 40 44 44	39 38 36 40 37	45 52 40 48 49	42 39 33 37 32	57 52 45 50 45	51 49 44 37 38	50 51 45 48 48	42 44 35 32 34
6 7 8 9	46 18 30 39 36	17 9 9 21 25	46 39 31 39 39	25 10 13 20 28	42 37 30 42 43	37 15 18 22 29	44 42 30 42 44	42 17 20 25 35	49 47 33 43 46	43 18 19 24 35	49 49 29 36 40	37 16 16 18 31	41 31 32 39 37	30 14 19 19 24	40 34 28 37 37	22 10 6 18 23	41 22 33 42 38	22 12 18 31 25	43 30 34 43 38	30 14 19 26 25	37 34 28 37 38	29 13 11 16 11	40 40 26 39 38	32 20 17 18 21	46 30 31 36 40	37 29 18 19 19	43 39 26 36 38	30 16 13 19 30
11 12 13 14	53 51 52 37 39	26 28 29 23 27	50 50 53 48 38	19 30 24 27 19	44 49 45 38 35	25 35 31 30 28	48 56 54 41 39	32 40 36 33 31	47 55 53 44 41	35 37 38 35 36	40 54 55 52 41	25 32 33 33 24	40 45 42 39 34	20 30 28 25 25 25	49 51 54 39 38	21 28 21 19 16	57 47 49 43 39	25 28 28 26 28	49 47 57 46 35	25 34 34 26 26	31 42 31 38 39	8 29 23 25 25 23	38 - 46 - 43 - 40 - 37	18 31 28 22 20	36 52 51 42 42	20 21 32 32 32 20	34 45 46 41 42	14 31 29 30 31
16 17 18 19 20	50 33 31 36 16	28 15 15 13 8	46 41 32 41 40	26 27 21 18 14	46 42 35 37 33	32 27 22 25 16	46 43 37 39 37	34 30 26 27 22	46 40 39 42 40	36 34 29 30 35	43 39 36 40 42	34 32 28 25 27	50 41 33 42 33	28 31 26 23 12	48 41 34 41 34	26 23 20 17 12	47 38 30 36 27	36 29 21 26 14	51 42 30 44 30	30 30 25 27 16	41 41 32 36 33	33 32 19 22 14	42 43 34 42 34	37 33 25 21 19	41 40 35 37 36	22 32 28 20 23	42 40 35 37 32	33 30 28 21 24
21 22 23 24 25	25	8 19 18 9 3	20 27 32 31 29	5 3 24 23 12	25 32 32 32 32 28	11 18 30 23 18	33 37 36 38 35	17 23 33 30 24	35 37 39 40 38	22 27 31 35 34	33 34 35 34 32	25 19 26 31 28	23 31 33 32 28	8 13 30 22 18	20 18 28 27 26	-3 4 6 9	23 26 30 30 26	8 11 12 27 13	22 31 32 32 29	11 16 27 25 16	27 27 30 24 26	14 15 19 17 3	29 33 33 29 32	19 25 29 27 16	31 35 31 34 30	19 15 16 30 29	28 28 31 30 29	19 18 19 26 25
26 27 28 29 30	18 26 20 22 25 27	10 15 15 15 18 22	24 27 29 32 31 26	11 11 17 19 18 20	23 28 28 34 32 30	14 13 22 18 19	28 26 32 34 37 35	21 21 25 26 23 21	34 32 33 34 33 34	26 26 28 28 25 26	32 29 32 30 33 30	17 14 27 28 27 26	22 29 29 34 32 27	10 15 20 21 22 21	27 26 25 31 30 26	7 7 14 19 18	24 28 28 31 20 26	14 16 24 21 20 17	23 28 32 30 34 24	15 16 25 23 22 21	17 26 31 31 30 30	-2 6 23 27 26 4	19 27 31 25 34 30	10 8 23 29 24 19	20 25 30 32 35 32	19 -4 6 21 26 26 26	25 22 29 32 35 30	8 4 20 25 25 24
Mns		19.3	38. 1	21.0	37.4	25. 3	40.6	29.7	42.4	32.5	40.8	28, 8	36.5	23. 5	36.0	17.5		23.6	37.6	25. 5		21.0		25.0	38.0	25.6	36.7	25.1
		I.	ower l	Michiga	in.					Oh	io.									New	York.					Vern	nont.	
Date.	Det	roit.	Musi	kegon.	Sagi West	naw, Side.	Cleve	eland.	Li	ma.	Sand	usky.	Tole	edo.	Erie	, Pa.	Buf	falo.	Can	ton.	Roch	ester.	Syra	cuse.	Bur		Nor fiel	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.																		
1 2 3 4 5	52 52	47 47 35 32 36			52 52 45 49 49	48 45 32 32 32 34	53 56 49 48 44	46 48 41 38 39	57 61 60 50 45	44 48 45 35 37	57 57 52 50 44	48 46 39 35 38	58 59 53 55 47	49 48 39 36 37	50 53 52 46 46	44 46 40 38 42	51 50 48 45 45	45 41 36 34 39	44 43 45 40 42	34 36 32 31 35	54 50 50 43 48	42 36 34 34 40	46 46 49 41 44	37 41 36 34 40	40 43 43 41 43	35 37 32 29 38	39 39 43 39 42	33 33 32 26 32
6 7 8 9 10	31 34	36 20 19 21 30			44 44 31 39 40	34 19 19 20 25	46 49 31 32 38	40 20 21 19 30	48 47 30 31 39	37 21 16 20 28	48 49 30 35 38	38 21 21 19 30	46 48 31 37 42	37 21 22 22 22 30	49 52 31 32 38	41 21 21 26 29	49 50 27 35 36	35 23 21 22 29	37 52 31 33 32	27 31 15 6 23	46 56 31 34 35	36 26 23 20 28	45 53 29 34 35	31 26 22 19 27	41 43 42 28 31	26 30 21 11 24	40 37 35 34 30	22 24 18 5 23
11 12 13 14 15	53 49 45	34			43	18 36 33 26 24		28 31 38 37 28	39 51 51 53 40	22 30 31 23 30	34 53 54 51 46	27 31 37 36 28	39 54 55 50 44	24 32 35 35 25	33 49 47 47 41	21 26 37 35 28	30 44 45 44 39	16 28 41 30 28	40	8 10 33 20 15	28 45 45 46 41		49	30	30 29 41 45 35	7 6 27 23 15	27 30 45 49 33	20 20 15 13
16 17 18 19 20	37 34 38	25			33 37	34 30 21 20 19	43 37 38	34 33 31 27 27	44 44 37 45 42	35 34 21 23 23	44 44 35 39 41	35 33 29 24 27	36 40	34 33 29 25 27	41 42 39 36 41	36 35 28 28 30	37	35 34 24 23 31	33	30 32 15 7 33	43 45 35 34 40	22 20	36	36 22 17	37 45 41 27 36	14	39 48 37 24 34	7
21 22 23 24 25	37 35	1			31 34 35 33	19 17 24 27 26	32 41 37	28 25 28 33 32	40 33 39 36 35	26 33	37 34 41 35 35	23 22 30 33 30	35 39 36		39 31 40 39 36	25 25 34	32 41 40	25 24 32	34	18 15 25	38 34 40 40 36	26 24 34	34 34 39	23 20 32	34	15 13 25	44 32 28 38 34	10 8 27
26 27 28 29 30	30 21 29 30	21 18 19 28 30 29			21 32 33 34		27	26 18 16 26 29 29	30 32	16 21 26 27	29	16 16 24 29	21 33 33 37	20 15 17 25 31	33 28 28 28 31 35	21 15 15 24 28 30	27 29 33	15 10 23 25 28 25	24 29	2 -6 0 19 14 -4	22 27 31 33	23	19 23 29	8	22	-2  -5  -1  14	30 16 15 19 33 28	-10 -16 -14

Mns.. 39.5 29.1 ...... 38.9 25.5 40.1 30.5 41.2 28.0 40.8 29.6 41.5 29.4 40.0 30.1 38.8 28.5 34.3 19.6 39.2 26.7 38.0 26.0 34.6 19.5 34.2 15.0

a, b, e, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 5, UPPER MISSISSIPPI VALLEY.

GEO. M. CHAPPEL, District Editor.

#### GENERAL SUMMARY.

The closing month of 1913 in the upper Mississippi Valley was marked by extreme mildness and dryness. For the district as a whole it was the mildest December since 1889, and with that exception, since 1877. In other words, the month was the third mildest December of record. The precipitation conditions of the month were also decidedly abnormal. Over much of the northern half of the district no other December of record has had so little moisture, several stations reporting no precipitation whatever, while many had only a trace. From southern Iowa northward the month's snowfall was almost negligible. Another feature of the month, which contributed in no small degree to its pleasantness, was the absence of much wind; the movement was the lightest of record generally for December.

The agreeable conditions of the month permitted building operations and other outdoor work of most kinds to progress with little interruption, but the absence of snowfall in northern Minnesota retarded logging. There was much complaint as to trade conditions in certain commodities, such as coal, heavy clothing, etc. The mild weather resulted in the formation of only a moderate thickness of ice, and at the close of the month there was some apprehension among dealers in that article.

The warm weather had its effect on vegetation. Hardy shrubs made some growth the first half of the month, and lawns and pastures were green as far north as Wisconsin during that time. In Illinois dandelions bloomed and went to seed, and pastures were reported better than at any time during the summer. Country roads were in excellent condition most of the month, but in some localities were quite dusty at the close.

The following table presents in condensed form the leading features of climatological interest for the various parts of the district:

		Tempera	ture	la .		I	recipi	tation.		
Parts of States within district 5.	Меап.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Average snowfall.	Average number of days with precipitation.
North Dakota Minnesota South Dakota Wisconsin Iowa Missouri Indiana Illinois	22. 0 26. 1 25. 4 28. 9 32. 5 38. 2 35. 1 36. 2	+10.8 +10.8 + 6.9 + 9.6 + 9.2 + 6.6 + 8.4 + 6.5	61 67 63 58 61 74 62 74	-21 -20 -10 - 8 - 5 9 11	0. 04 0. 04 0. 11 0. 20 0. 75 1. 60 0. 90 1. 00	-0.47 -0.79 -0.63 -1.21 -0.50 -0.23 -1.91 -0.98	0. 28 0. 42 0. 11 0. 79 2. 89 2. 45 1. 06 2. 45	0.00 0.00 0.11 T. T. 1.00 0.66 T.	0. 2 0. 3 T. 0. 4 1. 1 6. 5 5. 8 3. 4	1 1 1 2 4 5 5 6

### TEMPERATURE.

The mean temperature for the district was 30.2°, or 9° higher than the normal. The month was mild throughout the district, but the average daily excess of tempera-

ture was greatest in the extreme north where it reached almost 14°. Over much of North Dakota and Minnesota the month, with the single exception of December, 1877, was the mildest December in the climatological history of those States. The average daily excess of temperature exceeded 6° in all parts of the district save the southern tip of Illinois. That section of the State was the warmest part of the district, with average temperatures slightly higher than 40°; Cobden reported the highest mean temperature, 42°. The lowest mean temperatures occurred in the extreme northern parts of North Dakota and Minnesota, being slightly lower than 20°. Hannah in the former State, and Halstad in the latter were the coldest points, with average temperatures of 18°.

The first six days of the month was a period of abnormal warmth. The night temperatures especially were high at that time, having occurred in connection with the cloudy, humid weather that marked those days. Many stations in the southern part of the district experienced their highest temperature of the month some time during this six-day period, but from Iowa northward the warmest weather occurred at the beginning of the second decade. The highest temperature reported was 74°, at Cobden, Ill., on the 1st, and at Sublett, Mo., on the 2d. These were the only instances in the district of a temperature of 70° or higher. At most stations the coldest weather of the month occurred some time in the last decade. Christmas was the coldest day in North Dakota and Minnesota. No zero temperatures were experienced over much of the southern two-thirds of the district. The lowest temperature reported was -21°, at Hannah, N. Dak., on the 25th.

### PRECIPITATION.

The average precipitation for the district was 0.51 inch or 0.78 inch less than the normal. The month was relatively dry over practically the whole district, only 18 stations reporting an excess of precipitation; fifteen of those stations are in Iowa. Over the northern half of the district the month was unusually dry, no station reporting as much as an inch of precipitation, and in most cases the amounts were less than half an inch. Moreover, over extensive areas only traces occurred, and several stations reported no precipitation whatever. The precipitation was somewhat greater in the southern half of the district, but even there a general deficiency obtained. The greatest amount was 2.89 inches, at Burlington, Iowa.

A large share of the total precipitation occurred during the first week of the month, which was a period of dense cloudiness and damp, stagnant atmospheric conditions. From the 8th to 20th very little precipitation was reported from any part of the district, but beginning on the 20th and lasting about a week was a period of quite frequent snowfall. Most of the month's fall occurred at this time, and the amounts were moderately heavy from southern Iowa southward and eastward. The average snowfall for the district was only 1.4 inches; the greatest amount was 10.6 inches at Chester, Ill.

#### RIVERS.

The rivers and streams of the district were at low stages throughout the month. Ice was present in the Minnesota River after the middle of the month, and by the 22d the Mississippi had closed at Prairie du Chien, Wis., with floating ice, thence southward the remainder of the month, except that the river froze over at Le Claire, Iowa, on the 28th. At the close of the month the ice in the Red River of the North at Moorhead, Minn., was 6 inches thick, and a like thickness obtained in the Des Moines River at Des Moines, Iowa.

#### MISCELLANEOUS.

The prevailing winds were northwesterly over the Dakotas and Minnesota and southwesterly over most of the remainder of the district. The total movement was the lightest of record for December. The highest velocity reported was 48 miles an hour from the north, at St. Paul, Minn., on the 7th, and from the northwest at Minneapolis, Minn., on the same date. In the north the amount of sunshine was much in excess of the normal, but in the south a slight deficiency was reported from some sections. The average number of clear days was 14; partly cloudy, 6; cloudy, 11.

TABLE 1.—Climatological data for December, 1913. District No. 5, Upper Mississippi Valley.

-			, years	Temp	perature	, in c	degre	es Fal	hren	heit.	Prec	eipitation	, in in		days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest dally range.	Total.	Departure from the normal.	Greatest in 24 hours.	otal snov	96	imber of days.	day	Number of cloudy days.	Prevailing wind tion.	Observers.
North Dakota.																				
menia	. Bottineau	1,638	17 21		$+10.9 \\ +10.7$	55 49	11 10	- 13 - 14	25 25	35 44	T. 0.06	- 0.44 - 0.49	T. 0.05	Т.	0 2	22 14	8	7 9	w. nw.	C. E. Wood. H. F. Steinmeir.
Bowbells	Burke	1,958	12	18.4	+10.5	47	13	- 18	25	53	т.	- 0.38	т.	T.	0					G. H. Phelps. E. T. Judd.
rosby	Divide		6	20.6		47	101	- 7	23 25	30	T.		T.	T.	0	26	4	1	SW.	H. C. Kaschau.
evils Lake	Ramsey	1,482	8		+13.1	50 54	11 10	- 13 - 14	25 25	29 37		- 0.33	0.06 T.	0.2 T.	1 0	16 23	8 5	7 3	w. nw.	U. S. Weather Bureau C. J. De Vore.
unseith	Rolette	1,700	17	19.2	+ 8.7	44	13	- 16	25	33	0.00	- 0.54 - 0.39	0.00	0.0	0	40			nw.	C. E. Goodsell.
ckman (near)	. McHenry		7	22.8		59	10		05	41	0.11	******	0.11		1	24	5	2	nw.	Geo. Yenny.
essendenorman	Sargent	1,249	21	28.9	+13.9	520	10	- 15 - 3	25 20	41 38e	0.11	- 0.21	0.11	T. 0.0	1	24			HW.	G. T. Seymour, A. Maltby.
rafton	. Walsh	. 827	21		+13.0	55	11	- 16	25	39	0.07	-0.43	0.06	0.2	2	20	2	9	SW.	A. R. T. Wylie.
ranville	McHenry	1,504	8	18.0	******	55 50	11	- 14 - 21	25 25	33	U.00		0.00 T.	0.0 T.	0	18	7	6	8.	W. A. Christianson. J. Moffatt.
ansboro	. Towner		5		******				****											C. E. Blackorby.
illsboroakota			12	23.1	+ 9.3	53	11	- 14 - 16	25 25	35		- 0.88	0.05	T. 1.2	1 2	20 19	5 8	6	nw.	F. E. Mayall. C. R. Pettes.
angdon	. Cavalier	1,615	17												****					J. Woolner.
arimore			18	24.0	$+12.5 \\ + 8.1$	60 53		- 16 - 15	25 25	40	0.00 T.	- 0.39 - 0.63	0.00 T.	0.0 T.	0	24	13	12	nw.	J. M. Freeman. W. S. Adams.
disbon IcKinney		1,640	19	22.0	+10.7	56	5	- 14	24	42	T.	- 0.63 - 0.43	T.	T.	0	10	19	2	nw.	N. P. Swenson.
IcLeod	. Ransom	1.075	1	24.1		51	13†	- 14	25	36	0.00		0.00	0.0	0	12	13	6	sw.	Martin Reinholt.
lanfred	Wells	1,605	10		+11.0	55 55	10 11	- 14 6	25 7†			- 0.78 - 0.46	0.06	0.2	1	19 25	8	6	sw.	P. B. Anderson. W. C. Gould.
lilnor	. Sargent	1.097	1								T.		T.	0.0	0	6	17	8	n.	Hj. Edman.
inot		1,557	17 20	24.4	+10.7	61 50		- 14 - 15	25 25	41 37	T.	- 0.37 - 0.46	T.	T.	0	24 18	1 5	8	w.	Louise Bates. S. S. Marsh.
riska	. Barnes	1,270	8	23.5	+10.9	48	16	- 16	25	36	T.	- 0.40	T.	T.	0	14	11	6	sw.	J. J. Taylor.
ark River	. Walsh	. 998	39	00 0	+13.2	52	11	- 16	25	36	0.08	******	0.08	0.8	1	9	13	9	nw.	G. M. Hargrave.
embinaower		789	21	19.8	+13.2 + 10.5	58 51	16	- 20 - 16	26 25	50 33	0.02	- 0.83 - 0.46	0.02	0.0 T.	1	16 21	12	3	w. nw.	C. W. Shumaker. J. A. Power.
owner	McHenry	1,482	11	19.6	+ 7.2	52	10†	- 13	25	36	0.00	- 0.29	0.00	0.0	0	26	4	1	W.	B. Bagley.
niversity			21 19	20.8	+ 9.5	52		- 15				- 0.44	0.05	0.5	2	17	8	6	nw.	U. S. Weather Bureau Fred E. Smith.
alhalla			6					******			*****									Ivanhoe Lee.
esthope			7	10.0			104				0.10	0.20					10			F. A. Schwader.
illow City	0D	1,471	21	18.0	+ 8.9	51	107	- 19	8	56	0.10	- 0.32	0.10	1.0	1	15	12	4	nw.	M. A. Ostby.
Minnesota.																				
bert Lea			19 19	25.8	$+11.3 \\ +13.1$	53 54	11	- 5	21 25	29 33	0.07	- 1.03 - 0.50	0.05	T. 0,4	2 4	13 21	10 2	8	sw.	Edward Carey. P. O. Unumb.
ngus			11		+10.7	50		- 17	25	39		- 0.61	0.02	0.2	1 0	17	8	6	S.	John Nadvornik.
agleyaudette	Beltrami		7 3	21.1		52 52		- 17 - 10	25 25	34			T. 0.03	0.5	1	20	13 5	6	sw.	Jens Nelson. J. A. Gjelhaug.
eardslev	. Big Stone	1,090	17	26.0	+ 9.2	62	11	- 11	25	38	0.10	- 0.36	0.10	T.	1		12	4	nw.	G. L. Fitzgerald.
emidji	Beltrami	1,400	9		+10.3	63	11		25	41		- 0.59	0.02 T.	T.	1 0	7	11	13	sw.	C. W. Warfield. Dr. F. L. Puffer.
ird Islandrainerd		1,215	23	26.6	T10.0	55 50	11	- 3 - 5	25 21	33 29		- 0.00	0.00	0	0		10	5	n.	Theodore Miller.
aledonia	Houston	1,179	20		+10.4		3	12	21	29	0.12	- 1.28	0.06	0.5	3		2	16	nw.	W. D. Belden.
ampbellass Lake	Cass	975	6	21.3		52	11	- 12	25†	34	T. 0,02		T. 0.02	T. 1.0		19	1	11	nw.	J. T. Neisess. C. W. Burns.
hatfield	Fillmore										0.13		0.07	0.4	3	14	6	11	n.	G. A. Haven.
ollegevillerookston	Stearns	1,242	20 24	28.8	+10.1 + 9.3		11	- 13	25	28	0.07	- 0.43 - 0.45	0.07	T. 1.0	1		3 2	11 8	nw.	F. Tembreull. A. G. Andersen.
etroit	Becker	1,364	17	21.5	+11.1	51	11	- 14	25	28 31 44	T.	- 0.52	T.	T.	0	19	6	6	nw.	G. W. Peoples.
airmont (near)	Martin	1,240	26	28.6	+ 8.2	56b	11	- 2b	25	30b	0.04	- 1.08 - 0.57	0.04	T.	1 2	156				W. F. Wherland.
aribaultarmington		1,003	15 25	31.6 28.4	+ 12.7	56	11	100	22 21†	29°	0.06 T.	- 0.57 - 1.23	0.04 T.	T.	0	15 15	8 3	13	S. SW.	C. F. Hyde. E. D. Akin.
ergus Falls	Otter Tail	. 1,210	21	24.6	+ 9.3 + 9.6	46	11†		25	26	0.04	- 0.67	0.01	0.3	4	20	3	8	Se.	C. E. Kissinger.
ort Ripleyosston	Crow Wing	1,136	5 3	24.2		55 45	12 11	- 7 - 15	25 25 25 25 21 25 25 25 25 25	33	O. 10	- 0.65	T. 0.05	T. 0.5	0 3	23 18	10	8	n. nw.	J. J. Tucker. O. N. Hem.
lencoe	. McLeod	1,000	16	29.0	+11.3	59	12	4	25	33 37	0.00	- 0.71	0.00	0	0	18	13	0	SW.	L. V. Koos.
rand Meadow	. Mower	. 1,338	25 2	30.0	+11.0	52	12	6	21	29 35	0.22	- 1.14	0.11	0.2	4	17	1	13	SW.	C. F. Greening.
ull Lake Damallock		1,215	14	26. 4 20. 0	+11.2	56 50	11 13	- 5 - 17	25	40	0.03	- 0.51	0.03	0.4	1 2	17 26	10	4	nw.	U. S. Engineer Corps. D. A. Robertson.
alstad	. Norman	. 870	7	18.0		53	13	- 15	25	39	0.00		0.00	0	0	24	0	7	SW.	A. G. Holstrom.
inckley iternational Falls	Koochiching	1,050	10	27.0	+15.1	54a 51	10 11	- 9	26	34a 27	0.07	- 0.99	0.07	2.5	· · · ·	10°	7=	13a 12	n. w.	W. R. Newman. J. T. Jaeger.
asca State Park	. Clearwater	1,500	2	22.6		54	11	- 17	25	37	0.00		0.00	0	0	23	0	8	nw.	J. A. Stillwell.
ake Crystal eech Lake Dam	Blue Earth		25	30.0	+11.3	56 53	11	- 8	26 25 25 25 25 25 25 25 25	31	0.07	- 0.86	0.07	0.7	1	18 16	7	12	s. nw.	W. P. Cobb. U. S. Engineer Corps.
ittle Falls	. Morrison	. 1,115	4	28.0	+11.3	53	11	- 8 - 3	25	31		- 0.80	0.00	0	0	12	11	8	nw.	Wm. Batters.
ittle Fork	. Koochiching		3	22.0		53	11	- 14	25	34	0.15		0.15	2.0	1	12	10	9		O. C. Olson.
ong Prairie	Lyon	1,299	21 20	29.0	$+17.1 \\ + 9.1$	67 62	11	- 7 - 7	25 25	42	0.00	- 0.57	0.00	T.	0	17	2 4	12	S. SW.	A. L. Sheets. J. W. Rouse.
ankato	. Blue Earth	. 758	15								0.02	- 1.09	0.02	T.	1	16	1	14	SW.	C. G. Staley.
apleplain	. Hennepin	. 1,023	17	, 28, 6	+10.8	51	11	5	25	26	0.04	- 1.16	0.02	T.	2	13	7	11	sw.	G. W. Richards. C. H. Foss.
ilacailan	. Chippewa	. 955	19	25.1	+ 8.8	60	111	- 9	24	40	T.	- 0.85	T.	T.	0	14	10	7	nw.	O. K. Opjorden.
inneapolis	. Hennepin	. 918	22	30.4	+ 9.7	56	11	10	26	26	0.05	- 0.90	0.05	T.	1	14	4	13	W.	U. S. Weather Bureau
ontevideooorhead	Chippewa		23 32	28.0	+ 9.7 + 9.5 +11.6	64 50	11 16	- 8 - 12	25 25	41 34	T. 0.02	- 0.72 - 0.72	T. 0.02	T.	0	17 19	7	10	nw.	L. G. Moyer. U. S. Weather Bureau
oose Lake	. Carlton			29.5	-11.0	58	13	2	211	47		- 0.12							*****	S. Swanson.
ora	. Kanabec	. 1,001	8	27.2		54 53	13	- 10	211		T. T.	_ 0.61	T.	T.	0	14	8	9	S.	Hans Peterson. D. T. Wheaton.
orrisew London	. Kandivohi	. 1,215	28	27.6	+ 9.9	48	11	- 10 5	25 25	39 27	0.03	- 0.61 - 0.49	0.03	T.	1	22	5 7	4 7	nw.	Harold Swenson.
ew Richland	. Waseca	. 1,180	19	30.4	+11.0	56	11	7	21	29	T.	- 1.20 - 0.74	T.	T.	0	15	7	9	SW.	N. O. Tyrholm.
ew Ulm	. Brown	. 791	33	28. 9 25. 9	+10.5	53	11	- 5	25 25	40 30	T. T.		T.	T. T.	0	17	13	15 11	s. nw.	A. L. Henle. J. B. Johnson.
eakie	at accumulation and an annual	4,070	1 0					- 10	25	00	TO.	0.71	T.			15	4	12	S.	De D A Wolling
sakisark Rapids	. Hubbard	. 1,426	23	23.0	+11.3	54	11		20	31	T.	- 0.71		T.	0		78			Di. I. A. Waning.
sakis ark Rapids	Hubbard	1,426		27.6		54	11	0	25	32	0.00		0,00	0	0	18	5	8	W.	Dr. P. A. Walling. Dr. E. H. Kerkhoff.
sakisark Rapids	. Hubbard	1,426	23 26 26	27.6 24.8	+11.3		11 11		25 25 25 22 22 25	31 32 35 38		- 0.71 - 0.61 - 0.79		1.5 1.0						Dr. E. H. Kerkhoff. U. S. Engineer Corps. Do.

TABLE 1 .- Climatological data for December, 1913. District No. 5-Continued.

			years.	Tem	perature	, in	degre	es Fa	hrenl	heit.	Pre	cipitation	, in in	ches.	days,		Sky		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	1	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy da 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Minnesota—Continued.								*												
Red Wing Reeds Landing. Reochester Roseau. St. Charles St. Charles St. Cloud. St. Paul. St. Peter Sandy Lake Dam State Sanatorium Stillwater Taylors Falls. Thief River Falls. Tracy. Warren. Warrend Winnebago Winnibigoshish Winoma. Winton Worthington. Zumbrota. South Dakota.	Olmstead Roseau Winona Sherburne. Ramsey. Nicollet Aitkin Cass. Washington Chisago Pennington Lyom Marshall Roseau Cottonwood Faribault Itasca. Winona St. Louis Nobles	1,069 1,336 1,100	17 17 8 3 22 36 42 18 20 5 7 6 2 2 1 3 5 15 15 15 15 15 15 15 15 15 15 15 15 1	29. 2 18. 8 30. 0 28. 6 30. 2 29. 4 25. 8 24. 8 20. 8 21. 4 20. 8 28. 8 29. 6 25. 6 31. 4 21. 4 21. 6	+ 9.5 + 11.4 + 10.9 + 9.3 + 12.6 + 9.8 + 12.5 + 9.6 + 6.2 + 10.6	55 47 52 53 56 60 49 55 54 47 64 47 60 58 50 52 53 56 60 60 60 60 60 60 60 60 60 60 60 60 60	11 11 11† 3† 12 11	- 20 6 3 7 6 1 - 8 - 15 - 7 - 15 - 17 - 5 - 7 - 6 - 4 - 2	25 26 25 26 21 25 25 25 26 25 25	35 37 25 28 28 40 32 33 31 37 38 44 41 42 36 34 28 38 33 41	0.03 0.08 T. T. T. 0.09 0.00	- 1.38 - 0.75 - 1.10 - 0.54 - 1.04 - 0.68 - 0.75 - 1.01 - 0.71 - 1.03 - 0.76	T. 0.04 0.11 T. 0.15 T. 0.08 0.03 0.08 T. T. 0.09 0.00 0.01 0.04 0.12 0.20 T. 0.05	T. 0 T. T. 1.8 0.2 T. T. T. 1.2 T. T. 1.2 T. 1.2 0.1 4.2 T. 0.2	0 1 2 0 0 1 1 2 1 1 1 0 0 1 1 3 4 4 3 0 0 1	13 9 14 17 17 18 11 17 11 19 16 24 16 0a 23 13 15 11 18 10 19 14	3 3 12 3 3 6 6 2 15 2 4 4 5 0 0 11 2 4 2 9 6 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 20 14 2 11 10 14 12 5 10 8 10 7 7 4 4 6 6 9 10 11 12 11 11 12 11 11 11 10 11 10 11 10 10 10 10 10 10	SW. nw. 36. ne. n. nw. nw. s. s. s. w. nw. s6. s. w. n. s.	Louis Back, John Deschneau. Mary P. Leslie. M. J. Hegland. S. W. Gleason, State Reformatory. U. S. Weather Bureau. State Hospital. U. S. Engineer Corps. Dr. G. W. Beach. Oscar Ostrom. Minneapolis Gen. Elec. Co. E. W. Lown. A. H. Rowland. P. H. Holm. G. A. Sawyer, W. A. Peterson. H. H. Haight, U. S. Engineer Corps. P. C. Myers. A. E. Johnson. M. P. Mann. W. C. Rowell.
Milbank	Grant	1, 148	22	25. 4	+ 6.9	63	12	- 10	25†	53	0. 11	- 0.63	0.11	T.	1	19	7	5	nw.	Miss Mary Patridge.
Wisconsin.	Langlada	1, 489	19	20.4	+10.3	50	41	5	014	26	T.		Т.	T.	0	14	8	12	sw.	Elton C. Larzelere.
Baraboo Barrom. Beloit. Big St. Germain Dam. Beloit. Big St. Germain Dam. Brodhead. Burnett. Cottage Grove. Darlingtom. Deerskin Dam. Deelsvan. Dodgeville Downing. Eau Claire Gien Flora. Grantsburg. Hancock. Hatfield. Hayward. Hillsboro. Koepenick. La Crosse. Lake Mills. Lancaster. Long Lake. Maddow Valley. Medford. Merrill. Minocqua. Mondovi. Mount Horeb. Muscoda. Neillsville. New Richmond. Osceola. Park Falls. Portage. Port Edwards. Prairie du Chien. Prairie du Sac. Prentice. Reed Lake. Rhinelander Shinnelander Shinnelander Shon Springs Spooner. Stanley. Stanley. Stevens Point. Sugar Camp Dam. Tomahawk. Trout Lake. Pwin Lakes Dam. Valley Junction. Vilroqua. Vudesare. Waukesha. Wausau. Weyerhaeuser	Barron Rock. Vilas. Green. Dodge. Dane. Lafayette. Forest. Walworth. Iowa. Dunn Eau Claire Rusk. Wood. Burnett. Waushara. Jackson Sawyer Vernon Langlade. La Crosse Jefferson Grant. Oneida. Dane. Wood. Juneau. do. do. Taylor. Lincoln Oneida. Buffalo. Dane. Grant. Clark St. Croix Polk Polk Price. Columbia Wood Crawford Sauk. Vilas. Oneida Lafayette Douglas. Washburn Chippewa. Portage Oneida do. Crawford Sauk. Vilas. Oneida Lafayette Douglas. Washburn Chippewa. Portage Oneida do. do. Vilas. Oneida Lafayette Douglas. Washburn Chippewa. Portage Oneida do. Vilas. Jefferson Waukesha Monroe Vernon Vilas. Jefferson Waukesha	854 1, 115 750 1, 590 812 880 888 867 1, 685 993 800 1, 220 983 800 1, 095 1, 091 973 1, 107 1, 000 1, 683 800 1, 095 1, 091 973 1, 107 1, 685 1, 091 973 1, 107 1, 107 1, 108 1,	0 2 2 2 47 3 2 2 13 11 1 2 2 1 1 1 4 4 2 2 1 1 2 2 2 2 2 2	27. 2 2 33. 1 4 31. 6 6 29. 3 32. 0 28. 2 29. 8 31. 4 31. 6 6 29. 3 32. 0 28. 2 29. 8 31. 4 31. 8 6 25. 0 0 28. 3 20. 2 28. 2 2 29. 8 31. 4 25. 0 28. 3 30. 8 28. 2 27. 6 6 29. 3 30. 2 28. 2 27. 6 6 29. 3 31. 3 31. 1 2 26. 4 28. 3 31. 0 2 27. 2 29. 2 28. 4 27. 2 29. 2 28. 4 27. 2 29. 2 28. 4 27. 2 29. 2 28. 4 27. 2 29. 2 28. 4 27. 2 29. 2 28. 4 27. 2 29. 2 28. 4 27. 2 29. 2 28. 4 27. 2 29. 2 29. 3 30. 0 2 27. 2 29. 2 29. 2 29. 3 30. 0 2 27. 2 29. 2 29. 2 29. 3 30. 0 2 27. 2 29. 2 29. 3 30. 0 2 27. 2 29. 2 29. 3 30. 0 2 27. 2 29. 2 29. 3 30. 0 2 27. 2 29. 3 29. 3 29.	+10.6 + 8.6 + 9.0 	50 54 54 54 55 57 51 55 56 58 58 58 58 58 58 58 58 58 58	111 4 4 4 4 4 4 4 4 4 1 11 11 11 11 11 11 11	- 2 13 20 9 9 100 9 100 1 1 1 1 1 1 1 1 1 1 1 1	286 277 21† 227 227 227 227 227 226 266 21 221 221 221 221 221 221 221	31 26 37 24 30 32 33 33 33 33 34 31 33 30 30 31 31 32 30 30 30 30 30 30 30 30 30 30	0.60 0.20 0.00 0.07 T. T. T	- 1, 23 - 1, 44 - 1, 42 - 0, 96 - 1, 62 - 1, 53 - 1, 24 - 1, 12 - 1, 20 - 1, 32 - 1, 17 - 1, 12 - 1, 20 - 1, 39 - 1, 38 - 1, 24 - 1, 17 - 1, 12 - 1, 20 - 1, 39 - 1, 35 - 1, 44 - 0, 83 - 1, 35 - 1, 14 - 0, 83 - 0, 88 - 1, 34 - 1, 26 - 1, 34 - 1, 34	0.29 0.06 0.06 0.06 0.08 0.17 T. 0.05 0.18 0.19 0.06 0.17 T. 0.05 0.17 T. 0.06 0.17 T. 0.07 T. 0.08 0.19 0.09 0.09 0.04 0.05 0.17 T. 0.08 0.10 0.10 0.10 0.10 0.10 0.10 0.1	T.T. 8 T.T. 0. T.T.T.T. 7. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	20332223111222000044013333513322444333131622211000112112110000110110333350	17 15 13 14 16 11 17 17 17 18 15 18 18 11 15 18 18 11 15 18 18 11 15 18 18 11 15 18 18 11 15 18 18 11 15 18 18 11 15 18 18 11 15 18 18 11 15 18 18 11 18 18 18 18 18 18 18 18 18 18	4 9 5 6 6 4 7 8 6 6 10 4 4 6 6 6 7 14 21 12 8 7	11 13 13 13 9 7 5 14 10 13 8 12	SW.  IN.  W. SW. SW. SW. SW. SW. SW. SW. W. SW. W. INW. W. SW. SW. SW. INW. SW. INW. INW. SW. INW. SW. INW. SW. INW. SW. INW. INW. SW. INW.	E. J. Curry. Wm. A. Kent. Smith Observatory. Fred Hessen. Hector D. Kirkpatrick. Geo. W. Smith. John E. Mellish. Sever P. Nelson. Wm. E. O'Neal. Elwood S. Austin. H. W. Jones. Eugene F. Stoddard. Robert D. Whitford. G. A. Durgin. Geo. T. Nixon. Chester Ahlstrom. Frederick B. Hamilton. Wis. Ry. Light & Pow. C G. H. McElroy. Emil V. Wernick. Edward S. Koepenick. U. S. Weather Bureau. S. Newton Dexter Smith. Edward Pollock. Louis Frank. U. S. Weather Bureau. Agr. Exper. Station. Frank Evans. Eugene L. Hitchcock. Charles H. Johnson. Wm. Zelt. Otto F. Lueck. Benjamin W. Applebee. Dr. Chas. Hebard. W. M. Lewis. Wm. Heaslett. Franc A. R. Van Meter. Charles W. Staples. Flambeau Paper Co. James A. Gillis. Wis. River Power Co. Joseph G. Lash. James Mulady. A. F. Miller. Rhinelander Power Co. Hurrison B. Chamberlin. John M. Sayles. Horace A. Bresee. W. Humphray Scott. Postmaster. C. W. Cheever. Victor Extrom. F. B. Moody. A. B. Brown. Louis L. Thomas. Charles J. Salick. Carroll College. A. A. Babcock, Jr. Miss Etta Stiles.

TABLE 1 .- Climatological data for December, 1913. District No. 5-Continued.

			years.	Temp	erature	, in c	legre	es Fah	renh	eit.	Prec	ipitation	, in inc	ehes.	days,	8	Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean,	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	tal sno	L 21	Number of clear days.	of pa	cloudy days.	Prevailing wind c	Observers.
Iowa.										0.7					2	4		10		
lbia lgoma. lta	Kossuth Buena Vista Iowa Story Jasper	1,513 721	15 39 22 37 37 13 23	29. 8 29. 4 33. 8 32. 6 32. 7	+ 7.0 + 9.7 + 8.0 +11.2 +10.0 + 8.5 + 9.0	54 55 54 57 57 55 56	5 11 11 12 13 12 2	3 2 10 9 6 5	21 25 25† 22 22† 21 8	37 29 36 27 34 29 28	0.90 T. 0.17 0.58 0.30 0.98 0.74	- 0.24 - 1.03 - 0.76 - 0.87 - 0.72 + 0.09 - 0.79	0.74 T. 0.08 0.44 0.17 0.77 0.64	0.8 T. 0.6 0.1 0.5 T.	0 4 4 5 6 2	19 17 10 19 18 15	17 3 4 9 1 5 5	10 9 10 12 11 8 11	sw. s. sw. n. nw. sw.	J. I. Chenoweth. Dr. F. T. Seelev. David E. Hadden. C. Schadt. Iowa State College. W. R. Vandike. O. C. Burrows.
elmondioomfieldonaparteoone	Wright	881	3 6 22 8	30.6 35.2	+ 7.3	56 57 57	1 1	4 0 - 3	21 21 22	30 30 33	0. 43 1. 46 1. 11	- 0.92	0.32 0.80 0.55	0.5 6.0 6.5	5 7 4	7 11	14	10	sw. sw.	Geo. P. Hardwick. G. V. Warner. B. R. Vale. C. F. Henning.
ritt	Hancock Des Moines Carroll Linn Floyd	1,236 544 1,265 733 1,015	16 17 23 31 22 46	35. 4 31. 6 33. 0 30. 5	+10.7 + 8.3 + 8.2 + 8.0 +11.5	54 57 53 54 51	11 13 11 12 11	3 9 6 13 9	21 21† 28 22 21 27 22	35 40 33 27 25	0. 02 2. 89 1. 29 0. 90 0. 30	- 0.74 + 1.34 + 0.30 - 0.60 - 0.98	0.01 1.53 0.62 0.55 0.24	T. 6.8 T. T. 0.6	2 7 4 2 3 2	17 9 22 12 10	2 0 1 5 8 5	12 22 8 14 13	sw. sw. ne. nw.	L. M. Goodman, Max E. Poppe, ir, Mrs. Jos. J. Wolfe, R. S. Toogood, U. S. Weather Bureau.
olumbus Junction avenportecorahelaware	Winneshiek	580 875	12 42 20 22	36.0 35.2	+ 8.8 + 9.4 + 8.0 +11.6	55 57 55 52	12 1† 12 1	13 11 16 11	22 21 21	28 27 22 27	0. 17 0. 53 0. 54 0. 39	- 1.68 - 0.93 - 1.15 - 0.97	0. 10 0. 23 0. 24 0. 23	0.2 1.5 2.7 1.0	3 3,	21 11 9	4	5 16 18	SW. SW.	A. E. Reid. J. B. Johnston. U. S. Weather Bureau. F. H. Baker. Nettie E. Ball.
es Moinesubuquearihamlkaderlmasthervilleairfield	Polk Dubuque Madison Clayton Howard Emmet Jefferson Fayette	727 1, 182 1, 298 780 1, 003	35 40 11 34 3 18 29 23 19	29. 6 29. 6 35. 5	+ 8.3 + 9.7 + 8.6 + 7.2 +11.4 +10.4 + 8.8 + 9.8	56 58 56 50 48 56 58 50 53	12 12 12 11† 3 13 3† 2†	- 1 7	21 21 22 21† 21 25 22† 21 21	28	1. 05 0. 34 1. 40 0. 74 0. 51 0. 20 0. 97 0. 53 T.	- 0. 26 - 1. 38 + 0. 10 - 1. 09 - 0. 42 - 0. 81 - 0. 96 - 0. 85	0. 81 0. 33 0. 81 0. 41 0. 20 0. 10 0. 35 0. 37	1.5 T. 2.5 0.5 1.5 T. 3.1 1.0	6 2 7 3 6 3 4 3 0	10 12 16 15 15 11 14 18 16	8 6 4 4 5 14 2 3 3	13 13 11 12 11 6 15 10 12	SW. NW. SW. NW. NW. Se. SW.	U. S. Weather Bureau. Do. George Phillips, Chas. Reinecke. H. A. Moore. A. O. Peterson. R. M. Mc Kenzie. R. Z. Latimer. J. A. Peters,
ort Dodge ort Madison ilman	Webster Lee Marshall Clayton Poweshiek Grundy Guthrie	1, 126 516 1, 052	13 64 14 22 21 22	31. 2 34. 1 33. 2	+ 8.3 + 9.7 + 9.7 + 10.6	53 50 55 53	11† 12 4†	9 8 9	25 21 21 21†		0.80 1.43 0.75 0.47 0.53 0.80	+ 0.34 - 0.50 - 0.01 - 0.99 - 0.64 - 0.38	0. 40 0. 55 0. 68 0. 16 0. 42 0. 47	0.5 3.0 T. 1.2 T. T.	4 4 2 5 2 3	9 15 16	12 6 7	24 10 10 8	ne. n. sw. sw.	J. F. Monk. Miss L. A. McCready. J. L. Wylle, F. L. Williams. D. W. Brainard. J. B. Calderwood.
ampton	Franklin Humboldt Buchanan Warren Johnson Hardin	1, 155 1, 095 921 969 683 1,170	18 23 25 49 22 53 20 14	33. 2 30. 6 32. 2 33. 2 32. 4 30. 3	+ 8.2 +11.7 + 7.3 +10.6 + 7.4 + 8.2 + 9.2	51 57 53 54 54 56 53 56	1† 4 12 4† 12 12 12 4 12	3 8 4 10 6 8 6 5	22 21 21† 21 21† 22 21† 22 21†	28 27 36	. 40 0. 17 1. 00 0. 61 1. 02 0. 82	+ 0.46 - 0.85 - 0.52 - 0.36 - 0.72 - 0.63 - 0.29 + 0.28	0. 92 0. 40 0. 12 0. 45 0. 44 0. 53 0. 64 0. 95	1.0 T. T. T. 1.2 T. 0.2 0.1	3	19 16 13 10 17	1 5 3 4 5 4	9 12 14 16 10 10	nw. ne. n. nw. nw. sw. ne. sw.	D. G. Beardsley. E. C. Grenelle. J. P. Peterson. R. E. Dudley. Prof. J. L. Tilton. Prof. A. G. Smith. J. B. Parmelee. Ora M. Hall.
eokukeosauquanoxville	Lee	614 644 920	42 21 18 14	36.9 33.2	+ 7.5 + 5.8	58 57	1	15 - 5	21 22†	26 39	1.35 1.63	-0.52 + 0.13 + 0.55	0.55 0.40	5.0 5.0 7.0	6	8	7	16	nw.	U. S. Weather Bureau J. H. Landes. Casey and Belville. J. B. Alter.
ansing e Claire arshalltown ason Clty ource ourt Pleasant	Scott	576 947 1,132 922 729	8 13 21 16 1 32 53	30.6 33.4	+ 9.7 + 8.9 + 8.6	60 52 57 58	111	8 6 2 4	21 21	33 31 28 27	0.46 1.49 1.37 0.04 0.60 1.11 0.97	+ 0.37 + 0.21 - 0.77	0.22 1.03 0.85 0.04 0.31 0.48 0.73	1.0 2.0 T. 0.4 0.6 4.0 1.0	4 6 1 4 5	13 8	3 10 6 6	15 12 7 12 17	w. nw. s. sw.	Chas. R. Serene. Miss M. T. Disney. Jacob Eige. Dr. Roy Desart. J. A. Dibel. J. W. Edwards. William Molts.
ew Hampton ora Springs	Chickasaw	1,169 1,064 1,122 760 1,184	16 17 15 26	32.8 29.6	+ 9.6	55	11	8 7 5 11 7 2	21 21 1	29 30 32 29 28 29	0.37	- 0.56 - 1.04	0.27 0.17 0.03 0.55	0.5 0.2 0.5 T.	4 4 3 3 2	16 17 14 13 15	6	11 11 11 10 11 16	SW.	A. F. Kemman. Arthur Betts. Chas. H. Dwelle. Dr. F. W. Port. Lester Coonradt. Joseph Boyd.
ttumwaellaerry.ocahontasockwell Cityac City	Wapello	649 877 975 1,248	18 11 12 9 17	33.9 33.1 30.0	+ 8.0 + 8.9 + 9.1	58 57 53	11 12 11	2 5 2	22 22 25 21	32 30 32	0.79 1.11 0.05 1.10	- 0.04 + 0.11 + 0.08	0.58 0.75 0.05 1.10	1.0 1.3 0	4 7 1 1	20 14 18 18	1 9 6 2 5	10 8 7 11 8	S. SW. S.	Chester Potter. J. H. Ver Steeg. S. J. Brumfield. F. E. Hronek. C. M. Randall. E. N. Baily.
Charles gourney oockport oorm Lake ipton jedo 'ashington. 'aterloo	Madison. Keokuk. Van Buren. Buena Vista. Cedar. Tama. Washington. Black Hawk	1,070 877 745 1,440 807 856 769 862	12 17 11 24 14 19 31 30	34.9 33.6 34.4 32.4 35.0 33.4 35.0 31.6	+ 8.6 + 7.3 +11.0 + 9.6 + 9.7 +10.4 + 9.6	57 57 53 56 56 56	11 11 12 12 2	4 4 4 - 5 2 17 8 8 8 11	22 22 22 25 21 21 22 21	31 25 37 33 23 30 28 27	1.64 0.37 0.92 0.01 0.51 0.91 0.32	+ 0.02 - 1.04 - 0.47 - 0.82 - 1.15 - 0.11 - 1.01 - 0.30	0.86 0.24 0.37 0.01 0.44 0.65 0.18 0.60	1.2 2.0 4.0 0 T. T. 0.2	7 3 6 1 2 3 4 4	14 7 9 21 8 17 8	8 9 7 2 9 6 9	9 15 15 8 14 8 14 11	SW. SW. S. ne. SW. SW. nw.	R. D. Minard J. T. Parker. C. L. Beswick. Chauncy Case. P. K. Gregg. I. F. Giger. Wm. A. Cook. Ralph B. Slippy.
Vaukee Vaverly Vebster City Vest Bend Vhitten Vinterset	Bremer	1,197 1,036	17 8 20 16	30.6 29.0 33.1	+ 7.8 + 8.4 +11.5 + 7.4	53 53 54	2 11 12	3 2 7 3	28	31 31 31 33 25	0.60 0.05 0.27	- 0.84	0.36 0.03 0.22	T. T. T.	3 2 2	17 16 16 14	7	8 11 11 8 13	SW.  SW.  nw.  nw.  sw.	Samuel F. Foft. Earl C. Moore. C. D. Carpenter. Phil Dorweiler. Dr. F. P. Butler. Dr. R. S. Cooper.
Missouri.	Scotland	700 534		38.6	+ 7.3	61	1	18	21	25	1.54	- 0.48 - 0.54	0.66			8 8		22 16	nw.	J. W. Pulliam. U. S. Weather Bureau
ouisiana. facon. fexico. Palmyra. teffenville. toublett. 7 andalja.	Pike	500 881 797 652 576 1,000	36 1 36 2 21 34	37.0 37.8 36.4 41.8 38.4 37.6	+ 6.2 + 4.2 + 8.1 + 8.7	65	1 1 2 1 4 2	16 17 14 18 10 9	22 8 8 8 8 21 20	33 28 32 35 31 35 25	1. 67 1. 50 2. 06 1. 73 1. 63 2. 45 1. 00	- 0.25 - 0.04 - 0.11 + 0.75	0.81 0.46 0.90 0.50 0.73 1.00	8.0 6.0 10.1 5.0 6.0 9.5	3 5 10 4 5 5	12 8 11 8 10 7	2 2 2 3 6 3	17 21 18 20 15	nw. sw. nw. sw. w.	J. T. Farrel. John A. Cook. J. F. Llewellyn. W. B. Markell. Frank Hall. Lewis Spriggs. C. B. Ellis.

Table 1.—Climatological data for December, 1913. District No. 5—Continued.

			year	Tem	peratur	, in	degre	es Fa	hrenl	heit.	Pre	cipitation	n, in in	ches.	days,		Sky	•	direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	1	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	20	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	g wind	Observers.
Indiana.																				
Collegeville	Jasper		14	36.8	+ 9.8	62	18	11	22	40	0.70	- 1.68	0.45	2.5	2	7	6	18	sw.	John Zeller.
Knox Laporte	Starke Laporte		17	35.4	+ 7.8	59 56	1 1 1	13 15	9†	36 27	1.06	_ 1 49	0.45	8.0 7.0	4 5	9	6	16 17	s. nw.	W. R. R. Tatman. Wm. M. Walton. jr.
Plymouth	Marshall	. 790	8	34.4	T 1.0	57	1	14	27	33	1.00	- 1.43	0.51	7.6	5	8	8	18	SW.	J. W. Siders.
South Bend	St. Joseph	. 726	20	34.7	+ 7.5	61	i	12	27	33 31	0.66	- 2.32	0.30	4.0	6	6	9	16	sw.	Henry H. Swaim.
Illinois.	1		-	-																
	Manua	790	19	95.0		**				0.								14		
ledo Jexander		738 670	13 20	35.8	+7.9 + 6.5	59	3	13	22	25 28 27 27 27 30	0.83	- 0.44	0.36	3.0	4	10	5 2	16 20	nw.	William B. Frew.
ntioch		. 861	12	33.0	+ 6.5	59 53	6†	13	29 27	27	0.67 T.	- 1.13 - 1.43	0. 20 T.	2.5 T.	7	14	1	16	sw.	George H. Hall. J. C. James.
storia	Fulton	650	14	36.7	+ 6.9	58	1+	18 13 15	22	27	1.27	- 0.51	0.50	6.5	5	9	1 3	19	nw.	Edward V. Bohl.
urora		678	34	34.2	+ 7.7	58	1	14	22†	30	0.46	- 1.48	0.23	2.2	6	17	6	8	w.	Edward V. Bohl. Miss Alice M. Holden.
ement		685	6 22	20.0							1.07		0.32	3.9	6	10	8	13		J. W. B. Stewart. Prof. H. N. Pearse.
loomington	McLean	350	41	36.6 41.6	+ 7.1 + 3.1	58 65	5	17 24	81	29 23	0.80	- 1.31 - 2.49	0.33	2.5	6	11 10	0	20 20	nw. ne.	Prol. H. N. Pearse.
airoamp Point	Adams		0	22.0	0.1	00		24	0	20	1.39	- 2.49	0.31	1.8 6.2	4	9	6	16	SW.	U. S. Weather Bureau. Capt. D. M. Morris.
arbondale	Jackson	445	8	40.2		67	1	18	9	32	2.05		0.60	6.9	15	9	4	18	nw.	State Normal University
arlinville	Macoupin	. 663	23 28		+ 5.3	60	6	16	9	31	0.85	- 1.32	0.26	3.0	6	10	3	18	sw.	Dr. J. C. Conley.
arlyle hester		170	21		******						1.86	- 0.40	0.94	2.2	7 15					Dr. J. C. Conley. Hervey O. Jones. Charles S. Gollon.
linton	Dewitt	380 727	3	36.6		60	1	17	8	32	2.45 1.36	- 0.08	0.60	10.6	7	11	4	16	sw	J. Frank Zeigler.
obden	Union	656	30		+ 5.3	74	î	19	9	30	1.47	- 1.97	0.50	2.0	6	17	1 7	13	n.	John Buck Co.
akota	Stephenson	929	8	32.4		56	4	9	21	29	0.14		0.08	T.	6	13	7	11	ne.	Elmer G. Smith.
ecatur		685 725 459	22 23 25	37.4	+ 4.4	60	6	18	8† 27	29 28 34	1.62	- 0.50	0.70	3.5	0	10	3	18	sw.	Prof. J. H. Coonradt.
ixon uquoin	Perry	459	25	40.8	+6.6 + 5.1	56 65	12 1†	12 20	9	31	1.17	- 0.01 - 1.10	0.70	3.0	6	13	4	14	nw.	H. U. Bardwell. G. H. Knetzger.
wight. ast St. Louis	Livingston	600	20	35. 2	+ 6.1	59	î	12	22	31	1.30	- 0.38	0.48	6.7	6	10	2	19	sw.	Edward O. Welch.
ast St. Louis	St. Clair	481	2 14								1.36		0.54	1.3	10					Edward O. Welch. W. Mc. K. Brown. W. H. Morgan.
dwardsville		554 716	6	24.0					7	20	1.87	- 0.11	0.65	4.7	9					W. H. Morgan.
lgin		449	1	34. 2	******	55	4	12	7	32	1.07	*******	0.70	3.0 2.3	6	8	7	16	sw.	Elgin Observatory. University of Ill. Expe
																				ment Station.
airviewalva.	Fulton	733 842	21	34.4	+ 8.0	F0.				00	0.82		0.34	4.4	6					Abram Wilson.
rafton	Jersev	422	20	04.4	T 0.0	58	1	11	21	28	0.69	- 0.81 - 0.76	0. 28	5.8	5 7	12	4	15	n.	R C Goodrich
reenville	Bond	635	35 28 21	38.9	+ 6.0	61	21	20	81	26	1.26	- 1.37	0.45	4.0	7 5	8	3	20	S.	Prof. F. U. White, R. C. Goodrich. H. W. Reidemann. Geo. F. Kneeland.
riggsville	Pike	650	28	38.6	+ 6.8	60	2† 1†	19	8† 8	30	0.79	- 0.80 - 1.24 - 0.52 - 1.55 - 1.62 - 1.56 - 1.40 - 1.29 - 0.86 - 1.14 + 0.20	0.28	3.5	5	9	5	17	sw.	Geo. F. Kneeland.
lavana		475 500	21	36.2	+4.8 + 6.9	58 60a	6	18 12e	8 21	27 27 e	0.70	- 1.24	0.37	4.0	5 5	9	8	18	W.	L. L. Eutenener.
lillsboro	Montgomery	676	25 19	38.4	+ 6.1	60	6	18	9	28	1.29 0.72	- 1.55	0.43	1.3	5	12	4	10 15	nw.	Dr. F. A. Powell. Sam Little.
oliet	Will	609	22 25 21	34.1	+6.1 + 6.4	58	1	18 11	22	30	0.36	- 1.62	0. 23	2.4	3	11	0	20	nw.	F. M. Muhlig.
ishwaukee	Winnebago	730	25	33.1	+6.9	54	4†	12 14 12 .9 11	30	31	0.28	- 1.56	0.12	1.0	3 7 2	11	7	13	sw.	George Stevens. Prof. F. E. Sanford.
a Grange	Cook	657 698	34	35.0 36.2	+ 7.9 + 7.8	58 59	1	14	30	27 29	0.28	- 1.40	0.19	2.5	2	11	5	15	W.	Prof. F. E. Sanford.
anark	Carroll	883	24	32.6	+ 7.8 + 7.2	54	12	12	22 26†	29	0.94	- 1.29	0.48	5.5 T.	4 3	11	8 5	12 12	nw. sw.	George E. Campbell. M. N. Wertz.
a Salle	La Salle	536	8 25	34.1	+ 6.6	56	11	ii	22+ 29	32	1.42	- 0.86	0.92		3	8	2	21	nw.	H. A. Sohn.
incoln	Logan	575	25	36.8	+ 5.5	59	1	15	29	30	0.83	- 1.14	0.23	2.3	5	9	6	16	W.	Prof. C. S. Oglevee.
acombanteno	Kankakee	700 711	9 2								1.72	+ 0.20	0.91	5.2	6		5	***		State Normal University.
artinton	Iroquois	632	26	35.0	+ 6.2	59	1	11	8	31	0.86 1.22	- 1.11	0.37	3.1	6	14	4	12 16	SW.	C. B. Schmeltzer. Joseph H. Peltier.
ascoutah	St. Clair	425	23	40.0	+ 5.1	65	î	20	9	29	1.60	- 1.11 - 0.78 - 0.32 - 0.48	0.82	4.0	5 7	10	5	16	nw.	Dr. Robert F. Lischer.
inonkonmouth	Woodford	745	20	35.4	+ 8.0	60	1	14	22 21	29 32	1.44	- 0.32	0.62	6.0	10	10	3	19	nw.	John C. Danforth. Dr. J. C. Hutchinson.
onmouth	Warren	784	21	35.2	+ 7.4	59	1	12a	21	26	1.04	- 0.48	0.45	6.0	5	10		18	nw.	Dr. J. C. Hutchinson.
orrisorrison	Grundy	518 685	19	34.9 33.2	+ 7.6	59 57	1 12	12a 12 10	22 27	29 31	0.91	_ 1 10	0.38	1.3	5	12 14	4	15	sw. ne.	E. G. Cryder. S. A. Maxwell.
orrison ville	Christian	626	14		+ 6.6	58	6	19	8	29	0.62	- 1.19 - 1.23	0.11	1.4	8	10	2	19	8.	J. D. Lowis.
ount Vernonashville	Jefferson	511	19		+ 5.5	64	1	18	9	28	1.83	- 0.72	0.50	2.5	7	13	6	12	n.	Theodore P. Stelle.
asnville	Washington	503	13								1.76	- 0.52	0.70	4.0	10					Harry E. Gewe.
regonttawa	OgleLa Salle	702 500	27	34.4	+ 5.3	60		19	22	28	0.63	1 25	0.30	3.0	5	10	1	20		G. A. Brown. Miss Maude M. Harris.
ina	Christian	695	27 27		+ 5.1	59	6	13 18	81	28		- 1.35 - 2.10	0. 19	2.0	4	7	4	20	8W.	Julius Keefer.
wpaw	Lee	930	1					40	01		0.34		0. 19	2.0	4			20		A. C. McBride.
oria	Peoria	609	57	35.7	+ 7.6	58	1	16	22	25	0.74	- 1.63 - 0.78	0.29	3.0	6	11	0	20	3.	U. S. Weather Bureau.
ontiae	Livingston	546	11	36.1	+ 6.3	55	2†	17	81	30	1. 24	- 0.78	0.62	6.0	5	11	3	17	sw.	George Butterworth.
lineyley	Adams	481 956	7 54	37.8	+ 9.6	61 55	4	17 13	21†	28 27	1.60 0.55	- 1.22	0.53 0.26	1.4	5 7	6	9	16	sw.	Fred J. Brinkoetter. John West James.
oberts	Ford	774	2			0.0		10			0.84		0. 20	0.8	6	10	3	18	SW.	R. E. Bradbury.
ockford	Winnebago	763	21	33.7	+ 5.7	59	4	13	21†	29	0.55	- 1.32 - 0.62	0.45	0.3	4	15	4	12		Dr. John R. Porter.
Charles	Schuvler	670	22	38.0	+ 6.4	59	1†	19	81	28	1.09	- 0.62	0.50	5.0	3	3	4	24	nw.	H. F. Dyson.
. Charles	KaneFayette	700 500	18 11	39.4	+ 8.0 + 4.7	56 60	1	12 19	8† 8† 9	30 28	0.62	- 1.28	0. 25 0. 57	3.5 6.0	6 5	11 8	5 5	15 18	SW.	Dr. William H. Bishop. M. L. Lansford.
arta	Randolph	538	27	40.4	+ 4.6	60	1	21	8	25	1.59	- 1.28 - 1.09 - 0.77 - 1.66	0.80	5.2	8	11		17	S0.	W. F. Clendenin.
oartaoringfield	. Sangamon	644	33	37.8	+ 4.6 + 6.5	58	6	21	8	27	0.77	- 1.66	0.22	3.0	8 7 7	10	3	18	SW.	U. S. Weather Bureau.
reator	La Salle	626	20	34.9	+7.01	60	2	12	22	30	1.89	+ 0.13	1.21	3.9	7	9	4	18	SW.	Miss Lora Sweetser.
llivancamore	Moultrie	530 855	13 33	37.6	+ 6.7	59	6	17 13	9 21	29 34	0.58	- 1.37 - 1.45	0.40	1.0	3	10	3	18	nw.	C. A. Corbin.
skilwa.	Bureau	798	29	33. 2	7 1.0	00	1	13	21	34	0.48	- 1.45 - 1.26	0.30	2.5	4	14	1	16		George E. Valentine. F. I. Smucker.
amut	do	717	22	34.2	+ 6.8	58	1	13	21†	26	0.39	- 1.14	0.30	2.5	3	11	4	16	sw.	O. C. Nussle.
arsaw	Hancock	501	15								1.55	- 0.02	0.53	5.4	5					W. R. Kirkbride.
aterloo	Monroe	719	5								1.42		0.85	9.8	10					Prof. James E. Raioburn.
hite Hallindsor	Green		14	38.1	1 5 0	60	6	18		31	1.16	1 50	0.50	3.9	5	10	4	17	0.	Frank Dillman.
1	Shelby	900	26	39 0	+ 5.8 + 7.2	60 54	6	18 12	8† 21	30 29	0.60	- 1.56 - 1.51 - 1.40	0. 25 0. 12	1.0	6	10 12	5	19 14	3. 5W.	Herbert Rose. Frank Osborn.
innebago																				

<sup>a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.
\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.</sup> 

# Table 2.—Daily precipitation for December, 1913. District No. 5, Upper Mississippi Valley.

Stations.	Watershed.											1		1	,	-	-	mon	-		1	1	1	1	-	-	1	-			-	1	1	-
Stations.	** aversued.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	4 1	5	16 1	7	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
North Dakota.																-																		
menia II	Red		T.	T.																											Ť.			0
owbells	Mouse								. 05	****	***				-	**						***												1
mdo	Sheyenne									1	1	1		1			- 1								· T			Ť.	T.					
osbyevils Lake	Mouse	.06	****					T.	****	***																T.		***	T.					. 0
onnybrook				****																			T.			T.								*1
unseith	do																																	
ssenden	James	T.	.11	m	1				1		1				1	1											T.							. 0
rmanafton ;	Red	1	0.0		1				1	1	1	1	1	4			- 1			- 1									. U					. 0
ranville	Mouse										.1	1.					1.											***						. 0
annahansboro	Pembina	1		1						1																								
illsboro	do	05						1	1	1	1	1	100	1														T	T.			T		. (
akota angdon []	Sheyenne	.04																																
arimore	Red																																	. (
isbon    cKinney	Mouse			1000														::::						T.	T.								. T	
cLeod	Sheyenne																		***		accel									2 ***			T	. (
lanfred	Red				T																													1
ilnor	do	T.	T.	T.				1																		T.								
inot	Red																											. T.		100			. T	
riska	Sheyenne		T.																										T					
embina II	Reddo	T.		1	1				0	2			. 1	r			T.				T.													1
ower	Sheyenne	T.	0.3	5	1				. 1																		T.							
owner	Red	(ID)	.01																									. T.	1.0	5				
Vahpeton	do																									***								
Valhalla Villow City	Pembina								i	0																			. T					1
Minnesota.																																		-
lbert Lea		. 0	5 .00	2			T.														Т.					T.			3 .				Γ	
lexandria [	Red	. 00	2 .0	1	. T.																							T						
lagley	do																	****										. T				F		**
audette			0						. T												1.					T.								
Bemidji	. Mississippi.		0	2						1	-					1					1						T	T					r	Γ.
Bird Island	Minnesota Mississippi.																																	
aledonia	do	0	6					0	1 T												7	T.									05			
ampbell			-	1		-	1	1000			1	1		- 1		1				1		1	1							02				
hatfield	do	0	7				0	4 T														T.						T		02				
ollegeville			. T							-																								
Detroit	do		T	T																		T.	Т.						- 7					
Fairmont (near)			4 .0	2			0	4											T.								. T							
Farmington	do	. T.	T																								i			oi :				Т.
Fergus Falls Fort Ripley			1							1																			. 7	r				
osston	. Red	0	4		0																									05	***			
Flencoe Frand Meadow	. Mississippi.		i .0	3		T	1.0	5 T			**		**	:::	***						T.						T							
Full Lake Dam																						. T	. T.				. T			03				***
Hallock	. Reddo	0						-		0/2	**		***				***																	
Hinckley	. St. Croix					1	-	100		-											· · · ·									07				
International Falls. Itasca State Park	Micologiani	1	1	1		1				- 1					- 1					1	1.00											** * *	* * * * *	***
Jake Crystal	Minnesota.	. 0	17			-																						· j		02		***		
Leech Lake Dam	Mississippi.																																	
Littlefork	. Rainy																												** 1	10	***			
Long Prairie	. Mississippi. Minnesota.		73			1						1		- 1					1		1000					T								
Mankato II	do			12													***						. T					ř. 7	r	T	Т.			
Mapleplain Milan	. Mississippi	(	02 .C	12				1																		1 2		r. 7	r		× * * *		т.	TP.
umneapolis	. MISSISSIPPI	(	05 T																			. T			** **		7	Г	Γ.	Г.			I.	1.
Montevideo    Moose Lake	Minnesota St. Croix																																	
doorhead	Red	(	02																							1				I.				
doradorris	St. Croix Minnesota,			-																								T. '	Г					
New London	. Mississippi	T								- 1	- 1	- 1	- 1						1															
New Richland	do	1					T	. 7				***				****	***				. 1				** **									***
Osakis	Mississippi	T																	.1									'	Т.	T.				
Park Rapids []	do																							** **										
Pine River Dam	do																												T.	. 05				
Pokegama Falls	do																									** **		Т.						
Redlake Red Lake Falls     .	do								. 1		- 1					1																		
Red Wing II	MISSISSIPPI		I	. 17					5	Г													7						Т.					
Reeds Landing     Rochester	do		11						02																		Г				T.			
Roseau	Red			- 1		-																						1	T.	***			*****	
St. Charles St. Cloud	Mississippi		10					05 7																			1000	T.	T.					
	do		00					7	P									1	1			7	P					T.						

# Table 2.—Daily precipitation for December, 1918. District No. 5—Continued.

Stations.	Watershed.	_		of other trans												Day	of m	onth	•													
Stations.	waretaned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Minnesota—Con.																					70											
ndy Lake Dam	Mississippi																											. 08				
ate Sanatorium	do		. 03																						T.		T.					
llwaterylors Falls	St. Croix		. 03							1								1333									T.					
ief River Falls    .	Red	.00	****					1									****					••••			• • • •	••••	T.	T.	****	****		
юу	Minnesota	T.	T.																		T.						T.					
rren	Red Rainy								m											T.							T.			75	****	
ndom	Des Moines																			1.							. 00					
nnebago	Minnesota Mississippi	T.	T.				T.	T.													.01						T.		T.			T.
nona	do	.03	.01				1 . 12	T.	1			10000						****		****		****			****	T.			.04			****
nton	Rainy	T.																			.02						. 20					
orthington	Des Moines Mississippi																				T.				T.	70	· m	· · · ·				
	attasastppr	.00	1.					1.	****						****						T.		****		****	T.	T.	T.				••••
South Dakota.														1														200				
bank II	Minnesota	T	11	T	T.			1		1																T.			T.			
Wisconsin.	31111100014	-		1	1.													****	****		****		****		****		****	****	1.	****		****
	Wissensin							_																					_			
tigo	Wisconsin	.27					****	T.								****					T. T.	T.							T.			
rron	Chippewa		T.																****		1.					T.		T.	T.			
oitSt.GermainDam	Rock	. 13	. 03				. 08	3													T.								T.			
dhead	Rock	.07	****	***			1 1	7 7												****	T.	T.				. 08	T.	T.	T.	****		
rnett	do	. 35	T.				. 2	5 T.													T.							T.				
	do	. 35					.20	2 T.													T.							T.	.00			
erskin Dam	Wisconsin						.20	T.											****		T.					T.		T.	T			T.
avan	Rock	.04					. 13	3 T.																T.					T.			
dgeville	Chippewa							2																			70	· · · ·	m			
u Claire	do			1				T.								****					T.					T.	T.		T.		T	****
n Flora	do																									T.						
and Rapids	Wisconsin St. Croix	. 07	T.					1							.,						T.								.00			
ncock	Wisconsin	1.			-		T														T.				1			T.				
tfield	Black		.03				. 1	7																				. 05				
ywardlsboro	St. Croix Wisconsin	. 18					T.	1													70					T.		T.			70	
epenick	do	. 10						0										1			T.					1.		.10			1.	
Crosse	Mississippi		T.				1	1 T.												T.						T.		- 01	T.		. T.	T.
ke Millsneaster	Rock Mississippi		.02		1																		1						. 02	T.		
ng Lake	Wisconsin	.06						0	3 T.										fare a		T.	1		****		T.	****	T.	.01			
dison	Rock	. 09					2	4 T.																T.			T.	T.	T.			T.
	Wisconsin	.05	T.																							T.		.00	T.			
uston	do	. 15																1	1000										.00			
adow Valley	do		00					9 .0	7										1000	10000	T.							.00				
rrill			. 06		-																.01							T.	01			
noequa	do	. 05						T.	T.												T.					-		T.	T.			
ondoviount Horeb	Mississippi Rock	05	.06	T.											1 .0													T.	1			
scoda	Wisconsin	. 33						4	8																				. 1.		-	
illsvifte	Black						3	2 T.																				T.				
w Richmond	St. Croix Wisconsin	T.		1000		1-000																				· m		T.				
rk Falls	Chippewa							T.	1.0	4												T.	T.			T.	T.	1	T.	1		
rtage	Wisconsin	. 38	T.					3	2												I.							. T.	T.			T.
rt Edwards	do Mississippi	36					T.	T.											T.									. 10 T	0			
airie du Sac	Wisconsin			1			. 2	2																								
entice   edsburg	Chippewa Wisconsin		T.					. T.																					. T.			
st Lake	do		****																										T.			
inelander	do	. 03																			T.							-				
allsburgon Springs	Mississippi St. Croix	. 18					. 1	3										.1													-1000	
oner	do	T.																							1.	T.		T				
nleyvens Point	Chippewa							. T.																				T.				
zar Camp Dam	Wisconsin	. 22	T.					T.													T.	T				T.		T.	T		-	
mahawk	do							T.								1												. T.				
out Lake oin Lakes Dam	do					T		0	1												T.					T.		. T.				
lley Junction	do					1		O																T.	T.			T.				T.
oqua	Mississippi		T.			T.			. T.											. T.					T.			T	9	0		
desare	Wisconsin Rock	T.	T.				T.	1	5												. 0	3				. 0		T	T.			
ankesha.	Fox	. 32					.1	5 T																			T.	T.	0.	5		
usau II	Wisconsin	. 05	. 02					0	2						1 3						. 0	1							0	2		
eyerhaeuser	Chippewa Mississippi							. T.																		T.	T.	T				
Iowa.	arrasiaarphi.	. 10	4.				. 1	0			1	1				1		1		1		1				0 0 0	1.	1.	1			
	D	1						1		1			-		1									-						-	-	
bia    gona	Des Moines	.74			T.		T.														. 10	6	. T.		-			T.	. T.			
ta	Raecoon	. 05	. 03	.0	i I.																							T.		1		
nana	Iowa	. 05		.00	3			4 .0	8																				T			
nesxter	Skunk	. 02				. 0	1 .1	7 .0	3																	. 0	1					
lle Plaine	Iowa			T	8	.0	. 6	4 . 1	0																	T		0	3 T			
lmond	do	. 04	T.	T.	T.	T.	.3	2 T.												. T.	T.				0	0.		0	2			
oomfield naparte	Mississippi Des Moines	. 03	. 01	. 0	*		8	0												3	5		10					0	5			
one II	do			1.	T			1 T													04	0			7				. T			

Table 2 .- Daily precipitation for December, 1913. District No. 5-Continued.

Stations.	Watershed.		,						,							Day	of m	onth	١.					-								
Stations.	Waterstrou.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ows-Continued.																																
rlington II	Mississippi	1.53	. 02				.20	. 05	T.												.21	. 67		.21					T.			
rroll	Raccoon	. 05	. 07	(F)	T.	. 62	. 55																				T.	Ť.	T.			
dar Rapids	Cedardo	. 01	Т.	T.			.24	. 35 T.	T.												T.				T.			. 05				
nton	Mississippi	T.		T.			. 10	T.							T.	m								. 07	T. T.				T.	****		
lumbus Junction.	Iowa Mississippi	. 14		T.		T.	. 16	T.						****	Т.	Т.				T.	T.			. 24	T.			T.	T.		T.	T.
corah	do	. 05						. 23																		****		. 11		****		****
lawares Moines	Des Moines.	.01		. 10		. 12	.70													T.	. 10				.02			T.	T.			T.
buque	Mississippi	T		. 01			. 33	T.												T.	. 14				T.	05		T.	T.			****
kader	Raccoon Mississippi					. 11		T.													. 1.2							.03				
ma	W a psipini-	027	. 07	00			. 20																			T		10	. 05			
therville	con Des Moines					. 05																T.										
irfield	Skunk	T.		T.			. 28	. 04												т.				. 30				.10	****			
yette prest City	Mississippi Cedar							T.													T.							T.				
ort Dodge	Des Moines	. 20	T.				. 15		. 40						.33						T.							T. T.	. 05			
ort Madison	Mississippi Iowa	T.				. 25	.07	1.					0000		. 00														T.			
and Meadow	Mississippi Iowa	. 10		11																	T.					T.		. 10	.02			
rinnellrundy Center	Cedar	. 12	T.	. 11			. 47	.21																		Т.	T.	Ť.	T.			
athrie Center	Raccoon	. 19	.01	.11		. 05	. 92	. 22											****	****	. 06				T.	T.	T.	T.				
amptonumboldt	Cedar Des Moines		.03				.12																		T. T. T.	T.						
dependence	Wapsipi n i-	, 20	. 05																						T.	T.	T.		T.			
dianola	con. Des Moines .	.01			T.	. 01	. 44	. 03													. 10					T.		T.	. 02			
wa City	Iowa	. 53		. 05			. 12	. 32																T.		T		T.	T.			
wa Falls	Raccoon	. 16	.03	.02	T.	. 02	.95													T.	. 01				T.	T. T.		T.	. 02			
eokuk	Mississippi					. 25	.30	T.													. 42		. 05	. 33	T.	m.		T.	m.			
eosauqua	Des Moinesdo	. 40					. 39	. 12	T.								T.							. 10								
acona	do	. 01	. 04	. 22		.12	1. 15														. 60								.08			
ansinge Claire	Mississippido	1.03	T.	T.		T.	. 01	. 25	T.															. 20	T.	T.			T.			
arshalltown	Iowa	. 45	.01	. 01	T.		. 03	95	TP			1									T.					T.	T.		. 02			·
ason City	Cedar Skunk	т.	T.	T	T	.31	. 04	.08												T.			T.		T.	T.		. 02				T.
ount Pleasant	do						. 39	. 04													. 48	T.			. 01	T.		T.				
uscatine	Mississippi Wapsipin i-	.73	T	00			.05	. 10	T.															. 06		T.		.05				
ew Hampton	con.			1						1	1	1	-		1		1					****								1	1	
ora Springs	Cedardo	. 02	. 01 T.		T.	T.	.17 T.					***					****				т.			***		T.	****	, 03		T	03	. 02
orthwoodlin	Wapsipin i-	.05	1.	T.	1.	1.	.35	.20																								
00.00	con. Cedar	. 14					10																			T.						
skaloosa	Des Moines						.50													. 12	. 12							T.				
ttumwa															****		****		****	T	. 10	***			T		****		T.			T
ellaerry	Raccoon					T.	.75	. 18													. 06				T.	. 01		T.				
	do						1.10																				****	***				****
ockwell City	do	T.	.10	T.	T.	T.	.30																									
. Charles	Des Moines	. 03		. 12		. 17	.86											- T	****		. 29		****		.01	****	***	Т.	****	1		T.
igourneytockport	Skunk Storm Lake.						37														.30			. 13				T.		1		
orm Lake	Raccoon	****						PES													·			· · · ·	·	****			T.			
oledo	Iowa	.07		.04			65	. 22		1				1			1				1.											
ashington	Skunk	0.4		1	1	1.18		1	1		1	1	1		1	1	1		1		. 08			. 02					1			
Vaterloo	Cedar Raccoon	. 38	. 02	.10	T.	.03	.79	. 07												T.	. 05				T.	T.	T.	. 02	.01			T.
averly																														***		***
ebster City	Des Moinesdo	T.		. 04			.36	.20			***									T.		****	****		T.		1.	T.		1		
hitten	Towa	0.5		T	1	1	22			1	1		1		1	1	1											T.				
interset	Des Moines	.06	T.	. 13	3	. 17	. 87	. 20													. 15		****		T.	. 05		T.	T.	T.		T.
Missouri.					1	-						1																		1		1
orin	Micelegiani			00			63		1			1									66			. 23								
orinannibal	do			. 01		. 24	.06	T.									T.				. 41	T.	. 20	. 16	. 01	.01	· · · · ·		. 01			T.
ouisianaacon					T.																											
exico II	do	. 04	T.			. 02	.51						lane.				T.	. U2	.UI		. 18	. 18		. 90		* 13			. 01		* ***	***
almyra	do	. 39					. 45	T.		****								****			.39	05	****	. 50		****	****		****			
effenville	do	T.	T.			. 50	1.00	T.													. 20	. 50		. 25					****			
andaliaarrenton	do						. 32																	T.	. 68	11	т.		.00	2		
arrenton							. 09	****			***					****	****	.00		****	.00	.00		.00			1.		. 02	1		1
Indiana.																													1		-	
ollegeville	Iroquois	. 45	T.					T.	T.												T.	T.		. 25								
nox	Kankakee	. 13					T.	. 45	. 06												T.			. 40								
aportelymouth	do	. 20	. 15					.30	1											0000			. 20	. 20								
outh Bend	do	. 13			. 02	. 02		. 18														.01		.30								
Illinois.					-																								1			
			_	-			1	_													10			10					m			m
ledolexander	Illinois	.36	T.	T	T		1.17	T.	****	****		****	****	****		T		1			. 17	.01		. 19		. 05			T.			T.
ADMINISTRAÇÃO ADMINISTRAÇÃO	do	77		1	1			T.																T.							T.	
ntiochetoria	uo																											T.				1 757

Table 2.—Daily precipitation for December, 1913. District No. 5—Continued.

															]	Day	of m	onth															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Potel
Illinois-Contd.																	1													1			
loomington	Illinois	. 04	. 07	T.			. 12														. 19			. 33	T.								
airo	Mississippi	T.	T.	T.		. 21		T.						T.				. 04			T.		.31		T.	. 10			. 18		T.	T.	0
amp Point	do	. 16		.03	. 10	. 40	.44	.03								. 02	.01	.01	T.		. 36 T.	T.	. 53	.36		T.	. 03	T.	T.		****	.06	1 2
arlinville	Illinois	. 01		. 00			.12	. 00								. 02			1.		. 26	. 05	.00	. 16		. 25	T.		.00			.00	0
arlyle	Mississippi			T.		. 03	. 04	T.								T.	T.	T.			. 26	.04		. 94							T.		li
hester	do	. 08			.02		. 32	. 22								. 02	.01	. 02	. 04		. 02	. 16		. 42		.38	. 60			. 08		.06	
linton	Illinois	. 49					. 10	. 04													. 25 T.			, 28		. 19	T.						1
obden	Mississippi	. 20					.50	T. T.							T.	T.	T.	. 04			T.	. 15	T.	. 38		. 20	T.		T.			T.	1
Oakota	do Illinois	.06	T.	T.			.08	T.	T.													100		.30			. 25		T.				0
Decatur	Mississippi	.70		T.			. 05					****			****		1					. 17		. 28			. 20				0000		1
ou Quoin	do	.07	.00	1.	T.	T.	. 22	.01								T.			****	0000	.04		.30	. 40		. 78					0000		li
wight	Illinois	. 24					.17	. 09										T.			. 29	. 03		.48		T.			T.				i
ast St. Louis	Mississippi	. 02			T.	.04	.08	. 01								T.	T.	.10			. 20	. 12	.06	. 19		.54							1
dwardsville	do					. 12	. 04	. 03										. 15			. 16			. 17		.52							. 1
Elgin	Illinois	. 30					. 07	T.																.70									. 1
Ewing	Mississippi	. 12			· · · ·		. 21	T.										T.			T.	. 36		T.	. 27 T.	. 29	.02						1
airview	Illinois	.08			T.	****	. 15		T.												. 24	.02 T.		. 34	T.		T.	T.	.01				. 9
Jalva	do Mississippi	. 03			.00		.10	T.											T.		. 28	T.		. 26		T.	.32		T.				1
Grafton	Mississippido	T.		T.			19	T.	****									. 08	1.		. 20	. 22	.03	. 16	T.	.45			T.				li.
Friggsville	Illinois	. 01		1.		T.	.12	T.										. 00			. 28	. 44	.00	26	.01	T.			T.			****	1
Iavana	do	T.					T.	T													.33	T.		.37	.01	T.		T.	4.				1
lenry	do	. 43					. 15	T. T.										1			. 20	. 13		. 38									l i
Hillsboro	Mississippi	T.				T.	. 09	T.													. 20	. 02		. 11		.30	T.						1
oliet	Illinois						. 08	T.													. 05			. 23	T.				T.		T.		.10
ishwaukee	Mississippi		.01		.01		. 07														T.			. 04					T.				
a Grange	Illinois	T.		T.			.09														T.			. 19									. 1
a Harpe	do Mississippi						. 17	T.													. 28	T.		. 48		T.			. 01				. 9
Lanark	Illinois	. 42	T.	. 02			.07 T.	T.	T.				****		****							.03	T.	T.		T.							1
La Salle	do	. 22	1.		T.		. 16	T.									T.				. 23	. 00	T.	. 47	T.	. 02			(m)			T.	1
facomb	do		. 02	T.	1.		.19										T.			****	.27		. 40	.20	1.		FFS	T.	T.			1.	li
Manteno	do	. 24		1.			.07										1				. 11	.02	. 30	.37	T.			1	1.	1			. (
Martinton	do	. 41					T.	1.05													. 20	. 25		.31	T.								. 1
Mascoutah	Mississippi			. 01		T.	. 19	T.										. 04			. 11	. 16		. 27		. 82	T.		T.			T.	1
Minonk	Illinois	. 26	. 02				. 20											.01			. 26			. 62	. 01				. 01				. 1
Monmouth	Mississippi	. 02					. 26														. 45			. 30					T.				. 1
forris	Illinois	.38	. 02				. 13														T.	. 03		.35									. 0
forrison	Mississippi	. 02		T.	T.	T.	.00		m							T.	T.	T.		****				. 11				T.	T.			****	- 1
Morrisonville Mount Vernon	Illinois Mississippi	. 09					. 10		T.			****				T.	1.	I.	****	****	. 15	.01		. 50	T.	.05							. (
Nashville	do				T.	T.	.27	.00								.01	T.	T.	T.		. 05	. 30	T.	.30		70	30					T.	1
)regon	do		.01	. 01			.30			1						.01	1.	1.	1		T.	.00	1.	.30		T			T.				. 1
Ottawa	Illinois		. 02			. 10	T.	1													T.			. 41							T.		. (
ana	Mississippi	T.			T.		. 05	T.										T.			. 09	T.		. 06	T.	. 19							11
Pawpaw	Illinois	. 03	3				. 11														T.			. 19			T.						
eoria	do	T.		T.		. 08									T.			T.			. 29			. 20		T.		. 01					-11
Pontiae	do	. 27		60	- CT		. 15														. 19			. 62		· · · ·							
Quincy	Mississippi	. 53	T.		T.		. 33											.01			. 23	. 05			3	T.			T.				-
Riley	do Illinois	.09					.11									T.		.01							.03	T.			1			T.	
Rockford	Mississippi		. 01	T		****	.06														T.				3				T.			1.	
Rushville	Illinois	. 31	.01			T.	. 28	T.								T.					.31		.50			1.		T.		T.			
t. Charles	do	. 2	, 03				. 08									1					. 03			. 25	2				T.				
t. Peter	Mississippi	T.		T.				T.								T. T. T.		T.			. 12	. 45	T.	. 28	T.	. 15	. 07					T.	
parta	do	т.		T.	T.		. 22									T.	T.	. 01			. 01			. 25	3	. 80	. 02		T.			T.	
pringfield	Illinois			T.	T.	. 10										T.					. 21		. 16		B T.	. 12	2		T.			T.	
treator	do	1.2					. 03	.05		3						T.						. 25		. 26									1
Sullivan	Mississippi															T.					. 06			.40		- 12							. (
Sycamore	do	. 12			T	32	. 03	T.													10			.30			T.	T.					- !
liskilwa Walnut	Illinois Mississippi	I.	Т.		1.	. 15	. 14	T													T.			2	.30	1	I.	I.					
Warsaw   ]	Mississippido	9.0	5				. 14														39		1	. 5									:
Waterloo	do	. 34		T		01	16	T.						****		T.	T.	. 03			.03				1 .06	. 8!	0.05	3	T			T.	
White Hall	Illinois			1.	T.	T	. 18	T.								1 .	1 .	. 00			.31								1.			1 .	
Windsor	Mississippi			T.			. 04	.09	2												.04			2	2 T.	. 2							
Winnebago	do	01	T.				. 10														Т.	1		1.1	2				T.				
					T.											T.						T.		.2									1

<sup>\*</sup> Precipitation included in that of the next measurement, † Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 5, Upper Mississippi Valley.

				Non	rth Dal	kota.													Minne	sota.								
ate.		tti- u.§§		vils ke.	Lisb	on.§§	Min	ot.§§	Peml	oina.§§		lege-	Cro	oks-	Gra Mea	and dow.	Mor		Mo		Ne		Pine Da	River m.	St. I	Paul.		nibi- hish.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
	36 24 41 43 41	24 20 17 14 13	34 31 32 37 43	24 19 25 25 25 22	49 53 50 48 48	32 30 28 28 28 29	44 33 41 45 60	19 22 27 23 19	48 46 44 40 42	8 4 2 0 - 1	39 42 43 42 40	32 37 35 33 29	35 35 38 43 39	25 32 32 29 23	43 46 49 43 42	39 41 41 32 34	48 44 47 49 51	22 36 37 39 28	35 39 39 43 40	29 30 29 27 22	43 48 47 49 42	33 32 32 35 34	40 41 41 45 45	30 31 28 32 28	44 45 49 44 39	37 40 41 37 33	34 44 46 42 46	
	29 22 34 33 49	18 - 2 - 1 4 5	31 22 37 41 45	9 1 22 21 21	50 46 40 42 40	28 26 23 18 20	34 34 46 48 55	20 - 3 5 22 17	48 50 52 50 52	2 5 8 10 8	44 32 34 45 46	31 10 12 23 26	34 23 41 42 40	21 6 10 20 17	42 34 34 49 48	34 11 11 20 25	45 25 44 52 48	23 10 18 24 23	36 20 42 44 43	12 8 15 19 18	31 23 42 53 56	29 11 12 16 20	42 30 34 41 41	21 10 9 23 18	46 23 35 48 45	23 14 14 24 30	34 32 36 38 42	
	46 41 40 31 40	10 16 11 10 11	50 45 48 30 43	26 23 20 10 22	34 32 28 32 30	24 15 13 - 6 - 6	61 56 50 35 47	23 29 12 12 12 18	56 54 58 56 54	10 12 10 14 12	55 51 50 41 43	28 30 29 21 27	43 44 45 27 43	20 20 18 11 12	50 52 48 43 49	24 28 25 25 25 24	58 52 38 52	23 22 18 19 24	49 47 49 33 47	21 18 17 15 19	60 53 48 47 52	20 26 20 19 23	53 50 48 39 43	20 28 16 18 18	56 50 48 41 44	28 30 26 28 28	50 50 48 46 43	
****	40 34 35 17 25	11 10 10 3 - 5	42 31 42 17 23	19 12 13 2 - 3	32 21 38 34 26	0 3 - 4 10 2	46 43 43 21 29	24 9 9 8 - 6	50 46 42 40 38	8 9 8 4 2	47 38 37 40 35	25 24 16 23 7	46 30 35 17 17	19 20 12 12 - 1	43 45 43 41 33	28 23 15 20 11	53 40 35 34 27	25 19 10 18 4	50 34 39 22 17	16 4 11 5 3	58 47 43 39 27	25 29 12 13 11	45 42 33 31 23	22 21 4 13 4	46 40 38 40 26	27 25 19 23 12	46 44 35 34 24	
****	12 23 16 9 10	- 5 - 1 2 3 -14	16 29 21 10 10	- 5 2 - 2 -10 -13	30 36 38 30 30	-13 -13 -10 2 -15	18 34 21 10 18	5 6 - 3 - 2 -14	36 32 30 32 30	- 2 - 5 -10 -15 -10	27 32 34 28 15	9 10 14 14 0	9 30 23 10 10	- 1 0 6 5 -13	30 35 36 32 30	6 10 11 15 12	24 26 36 22 12	10 5 8 5 - 8	14 30 27 13 7	2 1 8 - 5 -12	21 32 37 25 20	6 6 10 13 2	21 31 28 21 18	- 4 7 - 5	27 36 .36 36 20	10 14 19 16 11	22 38 32 28 20	-
	14 14 34 32 32 32 23	-10 - 4 - 3 13 7 9	14 14 33 32 27 22	- 2 6 7 14 11 16	28 30 36 38 40 38	-10 -10 6 13 10 15	28 20 40 44 40 29	- 1 - 1 - 1 18 9 18	- 5 2 10 20 26 28	-20 -18 -12 -10 - 8 - 5	19 23 21 33 32 28	16 17 19 18 18 18	20 9 23 24 24 24 28	-10 6 - 3 8 16 14	24 27 24 39 28 25	15 16 15 15 14 14	26 24 26 36 33 36	0 15 15 12 15 14	21 20 26 24 28 26	- 2 5 2 13 13 14	27 30 32 35 38 29	3 8 12 11 18 18	17 21 23 24 26 23	7 9 13 16 19 10	24 24 26 36 27 26	7 17 17 17 20 19	18 22 23 22 24 28	
ns	29.7	6.6	30.7	11.5	37.3	9.3	37.8	11.1	38.9	0.6	36.6	20.9	29.9	12.5	38. 9	21.1	38.9	17.2	32.4	12.2	39.8	18.0	34. 2	15.4	37.6	22. 7	35. 2	10
-							Wisco	nsin.													Iov	va.						
ate.	Eau C	Claire.	Gra	nts-	Han	eock.	La C	rosse.	Mad	ison.	Pren	ntice.	Wau	sau.	Algo	ma.	Cec		Cha		Daver	nport	Moi:		Dubu	ique.	Keo	kuk
The same of the sa	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Mi
	44 46 47 45 43	38 42 37 36 35	43 46 47 42	36 38 31 31	45 47 50 50 48	38 40 39 33 36	44 48 53 52 44	41 43 40 34 36	43 47 46 52 46	41 42 42 36 37	41 43 46 50 50	31 38 28 30 31	41 45 49 50 49	35 37 34 32 32	44 47 49 47 44	38 41 42 37 36	51 53 51 51 47	46 46 47 42 39	45 50 49 46 45	42 43 42 34 37	52 54 51 53 48	47 49 47 41 39	54 54 52 53 47	48 50 48 44 42	48 52 49 51 46	44 47 46 36 40	58 57 54 50 51	
	40 37 31 44 45	31 9 12 20 27	43 32 31 43 46	27 11 9 19 22	42 39 29 45 44	35 15 12 26 28	42 31 36 48 47	31 16 16 23 29	43 37 31 43 43	37 14 18 22 34	46 39 30 38 41	29 10 3 18 24	38 18 29 41 41	32 12 12 13 21	43 34 35 49 48	33 11 12 20 26	45 23 32 44 45	39 21 18 17 22	29 34 46 47	29 15 15 19 27	46 42 33 45 49	42 20 18 24 32	46 32 37 47 50	32 17 18 24 33	45 41 33 45 46	41 18 18 24 33	58 45 36 44 50	
	54 48 47 41 47	19 29 19 24 20	52 53 50 42 43	26 26 22 23 19	50 50 52 45 36	22 34 27 29 24	52 54 50 44 43	25 31 27 26 25	48 53 50 39 38	28 36 32 30 26	48 50 50 47 46	18 25 19 23 21	49 39 49 39 36	22 22 24 22 24 22	54 50 45 42 47	27 27 24 25 25	49 54 50 45 40	24 25 31 30 29	51 50 50 43 48	26 29 27 24 25	51 55 53 45 42	29 35 30 32 32	53 56 54 48 52	29 35 34 27 26	52 58 53 45 40	26 34 33 29 26	55 57 57 45 49	The section of the section with
	40 34 40	26 21 13 15 15	38 40 36	24 8 22 8	45 42 37 41 36	29 26 13 21 19	49 44 38 41 35	30 28 19 22 14	47 42 34 39 36	32 29 24 24 18	48 48 36 33 32	22 19 10 13 12	48 39 35 38 23	27 21 14 15 19	47 43 40 36 34	28 25 14 18 9	41 42 36 40 36	31 27 23 22 22 22	45 44 39 40 34	27 22 16 18 11	46 42 39 44 38	33 31 26 27 21	50 46 43 37 35	31 29 24 25 16	42 44 41 43 38	32 31 24 23 20	47 42 41 46 39	
	32 31 28	8 15 9 12	26 33 26 34	6 4 11 5	27 33 41 29 27	6 9 23 16 21	29 35 31 30 29	11 11 18 15 18	31 34 32 32 32 29	13 17 26 26 17	20 25 30 30 28	2 10 4 6 5	23 31 31 27 24	6 9 13 17 19	30 33 36 32 22	6 10 11 15 2	31 31 34 34 30	14 13 15 27 27	30 34 36 33 22	9 14 14 15 15	32 34 34 34 34	16 18 28 27 28	29 29 33 36 27	6 8 18 27 15	34 34 34 34 33	15 18 26 22 26	28 32 34 34 33	
	26 37 29	1 13 18 15 18 20	24 24 35 25 25	- 3 15 15 20 20	26 27 26 35 30 29	13 11 19 16 14 19	27 29 25 37 24 25	12 18 17 16 17 18	24 27 29 29 32 26	16 15 19 19 19	28 28 24 34 34 25	- 5 13 10 14 15 18	25 26 25 33 24 28	8 9 12 13 14 17	24 30 28 40 29 25	13 12 7 17 15 17	29 33 32 31 33 28	25 24 27 22 17 16	28 29 25 38 24 25	17 16 10 18 16 17	29 31 32 32 27 27	20 19 27 24 17 24	27 32 31 40 34 27	13 20 19 19 18 25	30 31 34 32 34 25	16 18 22 22 17 22	30 36 32 31 30 31	

Table 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 5—Continued.

Han	nihal	Lan	orte								Illir	ois.					,		
				Ca	iro.	Du Q	uoin.	Green	ville.	La Sa	lle.§ §	Monn	nouth.	Peo	ria.	Rock	ford.	Sprin	gfield.
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
. 61 . 58 . 53	53 55 53 48 46	56 56 56 54 48	48 46 44 39 35	65 62 59 53 61	50 47 50 46 42	65 63 63 -59 59	46 46 48 48 43	60 61 59 55 54	46 49 52 48 45	56 55 51 56 50	51 51 48 46 39	59 55 54 54 50	53 52 48 46 37	58 56 52 54 51	49 53 50 40 36	50 53 49 59 50	45 45 45 34 38	57 57 56 52 53	48 50 52 47 42
. 48 . 36 . 43	48 23 20 24 31	50 47 34 38 41	36 25 17 15 31	61 52 36 43 52	52 29 24 26 31	60 50 27 46 50	49 25 21 20 29	61 50 34 41 47	49 24 20 20 29	47 29 31 43 48	39 28 18 18 28	55 45 33 43 50	44 20 17 22 31	56 44 32 42 50	43 19 18 20 32	46 44 32 46 48	39 16 16 21 30	58 48 31 41 47	48 21 21 24 32
56 56	28 36 31 38 37	42 45 52 45 40	24 25 25 25 25 25	52 56 58 54 46	36 34 38 46 34	55 59 65 61 45	29 29 34 33 34	52 56 58 58 46	30 30 33 37 37	50 55 54 41 37	24 23 35 34 25	51 55 54 46 42	25 32 33 33 29	50 54 55 45 39	25 32 32 34 27	51 56 55 48 37	22 33 30 32 22	48 54 55 56 43	34 34 35 37 30
46 44 47	35 35 29 24 30	41 40 37 40 38	31 32 29 22 25	49 48 47 50 55	32 42 35 30 38	51 51 51 50 53	37 40 30 25 33	44 48 47 47 43	36 34 27 26 30	46 39 40 42 32	21 33 23 23 24	42 41 40 43 37	34 31 20 23 31	43 40 40 42 36	33 29 23 26 29	45 39 40 34 35	31 28 19 20 21	40 45 41 42 41	34 38 28 27 32
35 35 34	22 29 32	36 36 37 37 29	17 18 31 25 16	42 41 39 40 35	36 33 36 35 32	45 38 39 36 36	34 25 34 34 32	42 37 35 35 35	30 24 32 32 30	31 34 35 36 32	16 11 11 25 25	31 32 32 35 35 33	12 25 24 26	30 35 34 37 35	18 16 29 30 28	34 39 34 34 32	13 13 26 25 23	34 36 35 35 34	20 21 30 31 21
34 35 34 31	28 28	33 33 36 29 33 33	25 22 25 16 25 25	34 34 34 38 32 34	31 31 31 31 30 30	34 37 37 40 32 34	30 29 30 30 29 29	34 30 38 33 31 32	25 24 27 27 28 28	28 30 32 31 31 37	22 23 24 29 19 20	31 31 35 30 30 29	22 22 22 22 22 23 25	28 30 36 31 29 29	22 24 25 27 25 27	27 30 32 35 36 26	20 16 25 26 16 21	31 31 34 34 30 31	26 27 26 24 22 22 22
	Max.  61	- 61 53 - 61 53 - 58 53 - 58 53 - 59 48 - 36 20 - 36 20 - 43 24 - 49 31 - 52 28 - 56 36 - 57 36 - 58 37 - 44 29 - 47 30 - 33 22 - 33 22 - 34 32 - 35 22 - 36 35 22 - 37 32 - 38 32	Mo. In Max. Min. Max.  61 53 56 56 56 58 53 56 56 58 53 48 54 54 48 23 47 36 20 34 43 24 38 45 56 36 37 40 44 29 37 40 44 29 37 40 44 29 37 45 30 38 34 48 29 37 37 32 26 29 37 34 32 36 35 29 36 33 34 32 36 36 36 36 36 36 36 36 36 36 36 36 36	Mo. Ind.  Max. Min. Max. Min.  - 61 53 56 48 - 61 55 56 44 - 53 48 54 39 - 51 46 48 35 - 59 48 50 36 - 48 23 47 26 - 36 20 34 17 - 43 24 38 15 - 56 36 45 25 - 56 36 45 25 - 56 31 52 25 - 56 31 52 25 - 56 31 41 31 - 52 28 42 24 - 56 31 52 25 - 56 31 52 25 - 50 38 45 25 - 44 35 41 31 - 44 29 37 29 - 47 24 40 25 - 48 35 40 32 - 47 24 40 25 - 48 35 20 37 31 - 31 25 33 25 - 31 25 33 25 - 31 25 33 22 - 35 29 36 16 - 31 25 33 22 - 35 29 36 25 - 34 28 29 16 - 31 28 39 26 - 34 28 29 16 - 31 28 39 26 - 34 28 29 16 - 31 28 39 26 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25 - 34 28 29 36 25	Max. Min. Max. Min. Max.	Max. Min. Max. Min. Max. Min.	Max. Min. Max. Min. Max. Min. Max.	Max. Min. Max. Min. Max. Min. Max. Min. Min. Min. Min. Min. Min. Min. Min	Mo.         Ind.         Cairo.         Du Quoin.         Green           Max.         Min.         Max.         Min.	Max. Min. Max. Min. Max. Min. Max. Min. Max. Min. Max. Min.	Max. Min. Max. M	Hannibal,   Max.   Min.   Min.   Max.   Min.   Mi	Max. Min. Max. M	Hannibal,   Max.   Min.   Ma	Hannibal, Mo.   Max.   Min.   Min.   Max.   Min.   Max.   Min.   Max.   Min.   Max.   Min.   Min.   Min.   Max.   Min.   Min.	Hannibal, Mo. Max. Min. Ma	Hannibal,   Laporte,   Ind.   Cairo.   Du Quoin.   Greenville.   La Salle.   Monmouth.   Peoria.   Rock   Max.   Min.   Max.	Hannibal,   Laporte,   Ind.	Hannibal,   Laporte,   Ind.     Cairo.   Du Quoin.   Greenville.   La Salle.§ \$   Monmouth.   Peoria.   Rockford.   Sprin,   Max.   Min.   M

<sup>\*,</sup> b, \*, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

### CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 6, MISSOURI VALLEY.

MONTROSE W. HAYES, District Editor.

#### GENERAL SUMMARY.

In most of the district the mild weather of November continued through December. There were no storms of any especial severity, except one that appeared over Colorado on the morning of the 4th and moved eastward over the southern part of the drainage area. This storm caused precipitation in the entire district, but the amounts were light in the northern half. In Colorado and southern Wyoming it was attended by unusually heavy snow; in Colorado the fall was the heaviest ever experienced there in December. In the region covered by the heavy snow live-stock and transportation interests suffered greatly. In the remainder of the district the weather was especially favorable for outdoor pursuits, except that in the northern half there was a scarcity of water, and it was necessary to water stock from wells. South of North Dakota the principal streams remained open practically the entire month, and at Bismarck, N. Dak., the Missouri River did not close until the 22d, which is the latest date on record. In the greater portion of Missouri the last 10 days were continuously cloudy, and the sunshine was about one-third of the possible amount. There was also a deficiency in sunshine in eastern Kansas, but in the remainder of the district there was more bright sunshine than is usual in the last month of the year.

### TEMPERATURE.

From a temperature standpoint the principal feature of the month was the extreme range of the departures of the monthly means from the normals. Over more than half of the district there was a pronounced and general excess in temperature, but owing to the persistence of high atmospheric pressure over Colorado there resulted a deficiency in that State and in extreme western Kansas, western Nebraska, Wyoming, and southwestern Montana. The greatest individual excess was 11.9° at Melville, N. Dak., and the greatest average excess for an entire State was 8.8° in North Dakota. The greatest individual deficiency was 12° at Fort Collins, Colo.; the average deficiency for Colorado was 7.5°, which was the greatest for any one State in the drainage area. In Missouri, Kansas, and Iowa the warmest weather was on the 1st and 2d; in the other States of the district the 9th-11th formed the warmest period. The lowest temperatures occurred during the last 10 days of the month, except in the lower part of the drainage area, where the 8th and 9th were the coldest days. There was a phenomenally small range in temperature in Missouri and portions of eastern Kansas and southern Iowa during the last decade. At Columbia, Mo., in the last 11 days the total range was 14°,

and 1 day had a range of only 1°. At St. Louis, in the same period, the total range was 11°, and for the last 6 days of the month it was 8°. November and December, considered together, make the first half of the winter one of the mildest ever experienced in the eastern part of the district.

#### PRECIPITATION.

The precipitation was deficient in the northern half of the district, or in the Dakotas, Montana, and northern Wyoming, and there was an excess in the remaining territory. It was especially light in Montana and North Dakota, where the average for the month was about onefourth of the normal amount. At a number of stations in those States there was no precipitation, while at others mere traces occurred, and there were also stations in South Dakota and northern Wyoming at which there was not a measurable amount during the entire month. Most of the precipitation occurred from the 1st to the 6th, except in Montana, where the first part of the month was dry. The remainder occurred after the 19th. It was mostly in the form of rain, except in the mountain and foothills country. Two marked features of the month were the heavy snow over Colorado and southern Wyoming, and the heavy rains in Kansas. In Colorado the average snowfall was 37.2 inches, and one station reported a fall of 87 inches. In Denver 57.4 inches fell during the month, being the greatest amount to occur in one month in the history of the station. In Kansas the average precipitation was 3.56 inches, the greatest December average of record; at the end of the month the ground in all parts of the State was thoroughly soaked for the first time since early spring. In a large part of Wyoming, Montana, and South Dakota November and December brought very little snow; the ground is dry and dusty, and cattle are still feeding on the open range.

The following are special remarks, made by the section directors, on snowfall in the Black Hills and in that portion of the Rocky Mountains drained by the Missouri River:

South Dakota.—The snowfall was exceptionally light. In the more elevated portions of the Black Hills the amounts on the ground at the end of the month ranged from 3 to 6 inches.

Montana.—The prolonged period of dry weather and mild temperature during the latter part of 1913 resulted in a marked deficiency in the stock of snow usually stored in the mountains at the close of December. There was very little snow in most regions below altitudes of 6,000 feet. Considerable snow fell in the higher mountain ranges during September and October, and some of

this held throughout the mild weather, but only on the north slopes, in timber, and where drifted in gulches. In most sections the surface of the ground is dry and dusty, but that there is considerable moisture beneath, stored from the September and October precipitation, is indicated by the normal stages maintained by the small streams.

Wyoming.—There is probably a normal amount of snow over the southern watershed of the North Platte River and in the Yellowstone Park. In the remainder of the State there is very little.

Colorado.—The distribution of snow during the month was unusual, and exceptionally heavy falls occurred in districts where normally the amounts in December are small. The region of abnormally heavy snowfall included the Front Range, the eastern extension of the Continental Divide, the eastern slope of the Medicine Bow Range, and

the adjacent foothill regions of these ranges. Throughout this area the snowfall was many times the usual amount, and represented a water content of from six to eleven times the normal for December. In the region drained by the upper South Platte an excess was general, but in no instance did it equal the values common on the eastern slope. The average depths on the ground at the end of December, as compared with the corresponding date last year, were as follows: South Platte watershed, 29 inches, or + 22 inches. North Platte watershed, 18 inches, or + 6 inches.

#### RIVERS.

The river stages were low. There was very little floating ice in the Missouri and that stream was open at the end of the month in the stretches below North Dakota.

Table 1 .- Climatological data for December, 1913. District No. 6, Missouri Valley.

			years.	Tem	perature	, in	degn	ees Fal	hren	heit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind c	Observers.
Wyoming.																				
rapahoe		5, 200 3, 862	3 14	13.7	- 5.1	56	7	- 17	29	56	0.85 0.17	- 0.08	0.20	11.8	6	5 26	20	6	nw.	Edw. L. Seymour. O. J. Robertson.
Big Creek Station	Carbon	7,500	2																	U. S. Forest Service.
urns			3	22.8 21.0			30	- 3	25 20	36	0.11 2.20		0.07	1.3 22.0	6	21 16	10	3 5	SW.	Kirk Baker. E. W. Bastian.
ssper	Natrona	5, 101	4			44	15	- 3 - 2 - 11	21 20	46	1.10		0.62	13.5	4	23	2 3	6	nw.	Jos. A. Murray.
entennialheyenne	Albany		10 42	18.7	- 2.4 - 7.0 - 6.1	43 45	14 31	- 7	20 20	36	2.94	+ 1.90	1.35	31.6		18	12	10 10	w.	Louis A. Gregory. U. S. Weather Bureau.
hugwater	Platte	5, 282	12	21.6	- 6.1	50	31	- 12	25 22	44	2.54	+ 1.69 + 1.55	1.04	28.0		22	3	6	W.	A. H. Woolever.
larkody		4, 320 5, 000	8	25.8 24.0		48	31	6	22 21	29 37	0. 10 T.	*******	0. 10 T.	1.0 T.	1 0	19 23	8	3	n. n.	Chas. A. C. Snow. D. A. Tinkeom.
randall Creek	do			24.0					21	31						20	. 9	3		Ira H. Sparhawk.
ome Lake			5 4	19.8			10	- 1 - 19	20	33	1.60			16.0	5 8	20 23	5 0	6	sw. nw.	Abe Mills.
ouglasubois	Fremont	6,909	6	21.0		53	13	- 13	20	52 50	0.16			12.5	4	18	10	8	nw.	Henry C. Miller. Dr. F. H. Welty.
uboisatons Ranch	Sheridan	4,600	8 4	31.9		61	91		20	35	0.40		0.20	4.0	3	25	8	2	n.	F. A. Eaton.
chetalk Mountain	Carbon	4, 200	8		******						0.10		0.55	1.0 25.5		19	8	4	S.	M. R. Hunter. Wm. Richardson.
neampment	do	7,322	4	18.2	******		8	- 15	22		0.57	******	0.22	8.0	7		11e		n.	U. S. Forest Service.
ort Laramie	Goshen	4,270	35	20.6 18.2	- 9.1	41 40	91	- 4 - 11	25	33 48	0.80 1.50	+ 1.02	0.63	16.0 13.5			10	5	SW. W.	Frank Jameson. John Hunton.
oxpark	Albany	9,015	3																	U. S. Forest Service.
ermaniaillette		4,312 4,546	7					- 5	22	35				1.0	2	27	1	3	se.	J. W. Peper. M. H. Shields.
orse Creek	Fremont	8,000	1																	U. S. Forest Service.
unters Station	Johnson	8,000 4,632	14				10	0	201	46				4.0	2	22	5	4	W.	Do. Wm. Booth.
reh	Niobrara	5, 100	3																	P. L. Ford.
innearirtley		*******	9	21 2	- 2.9	44	11	- 11	95	34	1 47	+ 0.92	0.80	17.0	3	21	2	8	nw.	John C. Hays. D. M. Zum Brunnen.
irwin		9, 187	4					- 11	20	34	A. 71	+ 0.02	0.00	11.0						C. L. Tewksbury.
nowles		4,500 4,720	3	21.0		43	21	- 2	904	35	0.40 2.59		0. 22 0. 65	4.2 27.5		19	10	8	SW.	Geo. A. Knowles. Owen Shupp.
agrangeander	Fremont	5,372	21	10.6	- 8.6	46	31	- 21	22	51	1.05		0.46	13.9	4	13	10	8	SW.	U. S. Weather Bureau.
aramie	Albany	7,188	22 11	9.9	-11.8	40	14	- 27	21	51	1.90	+ 1.49	1.11	18.9	7	22	2	7	SW.	University of Wyoming.
eoolabama Ranch	Carbon	7,052	9	27.3	+ 4.8	57	10	- 16	21	45	0.05	- 0.16	0.05	1.0	1	25	5	i	W.	C. A. Cowdin. Mary E. Painter.
ovell	Bighorn	3,825	7											****						R. Fred Harrison.
uskanville		5,007 5,050	22	21. 2	- 4.0	45	10	- 12	25	45	1.35	+ 0.02	0.55	7.0		12	11	8	******	D. E. Goddard. L. C. Stoddard.
ooreroft	Crook	4, 311	9	24.7		50	91	3.	23	371	0.13		0.10	2.6	3	18d	4d	5d	S.	C. T. McCampbell.
foore	Weston	6,000 4,319	12	26.4	- 6.3	40	31	3	211	26	1.72 0.10	+ 1.17	0.72	17.8		11 22		6	W. W.	Edwin Moore, Dr. S. W. Johnson.
athfinder	Natrona	5,735	7	18.8	+ 0.8	35	14	- 8	21	26	0.97	+ 0.46	0.47	11.7	4	18	3 8	5	W.	U. S. Reclamation Service
inebluff ine Ridge	Laramie	5,038	10	21.8	- 6.9	48	11	10=	251	47a	3. 25 0. 32	+ 2.54	1.48 0.25	30. 2 5. 5		8	17	6		C. L. Beatty. J. E. S. Altaffer.
owell	Park	4,376	5	19.4		43	6	- 6	291	34	0.12		0.12	1.5	1	22	5	4	nw.	U. S. Reclamation Service
awlins	Carbon	6,748 6,900	11	15.4	- 7.9		31	- 18 - 21		36 51	0.82	- 0.01	0.25	9.0		11 25	11	9	W.	E. J. Ehrenfeld. Rock Creek Conservation
ock Riverockypoint	Crook	0,900	i	11.0			91	- 21	21	31	0, 23		0. 12	3, 5		21	6	5 4	S	P. Woxen.
aratoga even-Mile Creek	Carbon	6,785	15	13.0	- 8.7	40	31	- 224	211	44e	0.87	- 0.24	0.45	10.0	4	16	2e	80	SW.	R. G. Hamilton.
heridan	Sheridan	3. 740	18	24.4	+ 0.1	56	9	- 5	25	44	0. 12	- 0.56	0.06	1.9	4	18	6	7	se.	U. S. Forest Service. U. S. Weather Bureau.
hoshone Dam	Park	5, 385	7	31.6		52	7	15	20	27 46	0.34		0.32	3.4	2	23	4	4	W.	U. S. Reclamation Service
outh Pass City			11	13.0	- 1.5	40	9	- 21				- 0.55	0.07	6.5	6	17		7	SW.	John Sherlock. Geo. W. Ashdown.
hermopolis	Hot Springs	4,350	10	21.4	+ 0.5	47	6	- 6	20	42	0.49	- 0.08	0. 27	7.5	5	19	9	3	SW.	A. L. Duhig.
pton	Sheridan Weston		1	26. 8 18. 8		40	9		30 22	39	T. 0. 19	*******	T. 0, 15	T. 2.5		20	14	6	se.	W. H. Coleman. Ray C. Thompson.
erona	Sheridan	4,360	4								0.04		0.04	0.8	1	20	6	5	se.	O. A. Roode.
Vheatiand Viants Ranch		4,700 7,400	3	19.6			31	- 13	181	53	4.05		2. 10 0. 40	29.0 20.0		10	9	12	W. SW.	C. A. Rockwell. Ira G. Wiant.
Voodrock	Sheridan	8,500	2																	U. S. Forest Service.
Vorland	Washakie	4,033	6	24.8		42	101	- 11 - 11	29 25	42	0.17		0.10	1.7	3 6	22 18	7	3	nw.	Prof. B. C. Buffum. U. S. Reclamation Service
ellowstone Park	Yellowstone Park.	6,200	25	21.1	- 0.5	41	11	- 2	21	30	0. 25		0. 24	1.0		17	7	7	S.	U. S. Weather Bureau.
	do	7, 220 7, 400	7 2				6	- 15	21	47				****		24	4	3		U. S. Army. Do.
Grand Canyon	do	7,900	6	5.6		33		- 27	29	42	0.13		0.05	1.3	5	19	2	10	w.	Do.
Lake Yellowstone	do	7,733	9	11.8		40	6	- 25 - 24	28	61	0.70		0.40	7.0	2	23	0 2	8 9	se. sw.	Do.
Riverside	do	7,500 6,500	7	12.4		45 38	31	- 24 - 21	29 21	59 53	0. 40		0.72 0.20	11.0		20 2	19	10	SW.	Do. Do.
Soda Butte	do	7,000	8	14.6		41	25	- 17	211	49	0.90		0.30	8.0	4	23	1	7	SW.	Do.
Thumb	do	7,000	6 7	9.4		40 35	11 6	- 10 - 25	211	42	0.15		0.06	1.5		23	0	5 8	W.	Do. Do.
Tower Falls	do	6,250	4	13.5		36	15	- 25 - 14	21	39	0.42	******	0.20	4.2	4	18	3	10	Mr.	Do.
Upper Geyser Basin  Montana.  ‡	do	7, 395	9	18.0		45	15	- 16	29	43	.0. 40	******	0. 20	4.0	3	24	0	7		. Do.
Montana.;	Stillwater	4,000	3	26.2		62	2	- 7	19		0.04		0.04	1.5	1	29	0	2	sw.	E. F. Bryant.
del	Cascade	5,200	14	30.0	+ 4.1	55	10	1	20	31	0.35	- 0.80	0.20	3.5	3	29 22	2	7	W.	Mrs. Bessie F. Burch.
gricultural College		4,900	15	27.6	-2.6 + 0.7	40 60		- 10	21 24	25 50	0.15	- 0.88 - 0.24	0.10	3.0			8	5	se. w.	Edmund Burke. C. C. Covington.
sald Butte	do	6,500	3								0.27		0.09	4.2	5	16	9	6	******	Mary L. Alderson.
BigtimberBillings	Sweet Grass Yellowstone	4,094	17	29.4	- 0.8	54 55	10	- 1	20	34	0.10	- 0.22	0.10	1.0		17 22	10	7	W. SW.	F. A. Severance. Dean J. Cole.
lackleaf	Teton	4,260	5	30.2		61	10	- 2	241	43	0.08		0.08	1.0	1	20	8	3	W.	Roy McNeal.
Bowen	Beaverhead	6,080	6	4.5		35	7 12	- 29	24 21	45	0.39		0.18	7.4	4	16	6 3	9	0 UF	B. B. Lawrence. C. L. Herzog.
Brenner		2,677		25.8		53	12	- 5	21	36	0.03		0.03	0.4	1	18	3	10	SW.	A. A. Schroeder.
Bridger	Carbon	3,664	4	23.8		50	15	- 3	31	36	0.06		0.06	1.5	1	13	10	7		L. E. Gard.
busby	Big Horn		9	24.6		63	10	- 3 - 8 - 2	31 20 20 20 20	44 54 40 25	0.00	*******		2.0	2 2	23	26 4	0	W.	U. S. Reclamation Service Rev. G. A. Linscheid.
petand	Stillwater	4,050	5	31.1			8	- 8	20	40	0.12			2.5	2	23 22 24	7 0	2 7	W.	T. H. Busteed. H. C. Bosworth,

# MONTHLY WEATHER REVIEW.

Table 1.—Climatological data for December, 1913. District No. 6—Continued.

			rears.	Temp	erature	, in d	legre	es Fah	renb	eit.	Prec	ipitation	, in in	ches.	days, re.	1	Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	0.5	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	Prevailing wind of tion.	Observers.
Montana—Continued.													0.10			00				W. L. Kirk.
Canyon Ferry	Lewis and Clark Cascade	3,670 3,361	14	21.0 33.0	- 1.4	52 55	9	- 9 - 9	21 20 25†	31 41 68	0. 20 0. 30	- 0.19	0.18	2.0	2 4	29 19	9	3	nw. sw.	Dr. E. E. James.
hester	Hill	3, 132 2, 502	9	25.6	+ 2.6	72 53	10	- 9 - 4	25†	68	0. 16 T.	- 0.43	0.16 T.	2.0 T.	1 0	24 23	7 6	0 2	nw.	C. F. Baker. T. O. Hanlon Co.
hinooklydepark	Blaine	5,027	1		+ 2.0	49	10	- 9	4	50	0.05	- 0. 40	0.05	1.0	1	21	6	4	n.	J. H. Eyman. Robert J. Kelly.
onrad	Teton	3,501	1 2 8	000 0		60	9†	- 1	24	46	T.		T.	T.	0	22 24	4	5	sw.	Robert J. Kelly. Orville Harris.
opper	MeagherBig Horn	5,680 3,041	30	25.8	+ 21	59	10	0	22	44	0.09 T.	- 0.73	0.08 T.	1.0 T.	0	29	3 2	0	W.	Harry Throssell.
row Agency	Sheridan	1,927	10	23.0	+ 2.1 + 8.7	55	10	- 7	22 20 25 20 21	45	T.	- 0.30 - 0.59	T.	T.	0	19	10	2	w.	G. H. Coulter. Chas. N. Thomas.
ut Bank	Teton	3,745	14	26.7	+ 3.8	60	19 10	- 6 1	25	45 55 33	0.00	- 0.59	0.00	3.0	0 2	20 20	9	7	W. Se.	P. J. Grie-enauer.
Penton	Fergus Beaverhead	5, 143	15		- 0.4	48	15	0	21	37	0.27	- 0.51	0.10	2.7 T.	4	15	10	6	SW.	Prof. J. E. Monroe.
Ounkirk	Hill	3,450	1				104		20	38	T. T.		T.	T.	0	28 25	3 5	0	W.	B. C. Protzman. William Freese.
kalaka	Custerdo	2,208	12	27.4	+ 6.0	52 50	101	- 8 - 9	20 20	45	0.00		0.00	0	0	23	8	0	W.	Mrs. A. C. Gifford.
indon	Meagher	6,000	1	28.8		54	10	5	20	45 29 47	0.02		0.01	0.6	2	24	2	5	w.	Lewis Cameron, sr. Alta Williams.
indon	Gallatin	6,000	2	20.8		61	11	- 6	20	47	1.18		0.98	3.0	3	22	0	9		W. Johnson.
latwillow	Fergus Rosebud	2,514	6	20.2		1 200	10	- 4	20 20 20 21 25 24	45	0.03		0.03	1.0	1	14	11	6	0.	H. Mackenzie.
ort Shaw	Cascade	3,500 2,800	24	31.2	+ 5.3	53° 58	91	- 2°	24	40°	0.08	- 0.37	0.06	0.8	2 2	16 25	13	2 3	SW.	U. S. Reclamation Service E. K. Bowman.
oster	Big Horn	5,500	3	28.6			10	- 9	21	52 36 32	0.64		0.24	8.0	5	15	10	6	SW.	Thos. E. Scally.
eyser	Cascade	4,147		26.8		50	9	0	19	32	0.14		0.14	3.0	1	18	8	5	w.	I. G. Finfrock. W. J. Gille.
leyser	Teton Valley	2,092	16	28.8		52	10	1	20	30	0.06		0.05	2.0	2	27	1	3	w.	C. D. Bauer.
lasgow	Dawson	2,069	22	25. 2	+ 7.4	52	13	- 5	20	42	0.00	- 0.62	0.00	0	0	25	7	5	S.	E. C. Leonard.
oldbutte	Hill	3,500	5	26.3 26.0		54	10	- 3 - 5	24	35	0.01		0.01	2.5	3	19 24	3	4	8. SW.	Joseph Berthelote. J. S. Rue.
raham	Custer Cascade	3,350	7 21	34.4	+ 5.5		10	1	20	38 32	0.27	- 0.23	0.16	3.0	2	24	6	1	SW.	S. H. Bauman.
Iarlowton	Meagher	4, 160	5	24.8		55	16		251	50	0.00	0.61	0.00	0,2	0	14 20	6 4	11 7	W. W.	Joseph Muir. U. S. Weather Bureau.
Iavre Iebgen Dam	HillGallatin	2,505 6,700	33	12.4	+ 2.4	52 35	10			40 34	0. 62	- 0.61	0.02	11.0	5	22	2 7	7	S.	T. L. Carson.
Ielena	Lewis and Clark	4,110	33	24.2		46	15			25	0.11	- 0.69	0.11	1.4	2	15	7	9	8.	U. S. Weather Bureau. W. S. McCord.
lighwood	Chouteau	4,300	6 7	26.6		55	10	- 4	20	35	0.23		0.13	2.6 6.0	3	23 28	2	6 2	w.	U. S. Reclamation Service
Iuntley	Hill		2	20.0			10				T.		Т.	T.	0	24	4	3	3.	F. H. Knoble.
ewistown	Fergus	4,006	15		+ 1.9	61	10	0	22	39		- 0.43	0.31	9.5	3	19 23	8	4	50. 50.	W. W. Watson. H. J. Barber.
onetree	Beaverhead	2,053 3,280	7	. 10.8		42	11	- 7	21	30	0.16		. 0.00	3.0		20	-		30.	E. Wilson.
othair	Hill	3,301	1	21.0		46		- 9	24	37	0.15			1.5	2	21	6	4	w.	James H. Whiteley. J. F. Fait.
ytle	Chouteau	2,250	6	29. 2		. 56	15		24 21†	35	T. 0.02			T. 1.0	0	24 14	3	6	sw.	U. S. Reclamation Service
daltadedicine Lake	Sheridan	1,969	2	20.2		. 56	13	- 8	27	37	0.08		. 0.08	1.0	1	27	3	0	8.	J. S. Collier.
felstone	Musselshell	2,903	1	29.2		. 61	10	- 1	21	42	0.04 T.		. 0.04 T.	0.5 T.	1 0	26 19	11	1	sw.	C. W. Greening. Leon B. Clark.
fildred	Custer	2,304	21	27.7	+ 6.7	55	9	2	25	40	0.02	- 0.60	0.01	0.1	2 2		6	0	8.	U. S. Weather Bureau.
Norris	Madison	2,371 4,845	6	27.0		. 54	8	5	25	38	0.19		0.16		3		8	3 2	8. W.	Montana Power Co. G. W. White.
Pinegrove	Musseishell Custer	2,757	1	25. 2		. 51	10		20	26 41	T.		0.10 T.	0.4	0	25	4	2	sw.	C. C. Conser.
Poplar	Sheridan	2,020	27	22.2	+ 6.8	49	5	- 6	20	39	T.	- 0.46 - 0.49	T.	T.	0		9	2	w.	H M. Cosier. I. A. Draper.
Red Lodge	Carbon	5,548 4,360	13		- 0.9 - 3.2		9		21 20	33	U. 11	- 0.49	0.06 T.	1.0 T.	0	18	6	9	Se. SW.	F. B. Elmer.
Renova	Jefferson Musselshell	3,640	3	26.0		. 61	10	- 11	19	54	0.11		. 0.08	4.0	2	25	2	4	W.	H. W. Scherfenberg.
Ryegate St. Marys Lake	Teton			. 33.9		48				20 38	0.02 T.			0.3 T.	0	14	146	1 2 6	3W.	Cyrus Bellah. U. S. Reclamation Service
Bavage Shelby	Dawson	3,176	1	23.2					25	46	T.		. T.	T.	0	20	5			Olaf C. Fjeld.
Bidney	Dawson		- 2	21.5		. 48		- 5	26				T.	T. 0.4	0	24 19	10	1 2 3	8.	P. F. Blake.
Springbrook	Custer		. 11	28.9	+ 6.3				3 20	32	T.	- 1.00		T.	0	26	1 2			Mrs. H. L. Miller. C. A. Newman.
Sunlit Farm	Blaine	3,170	1	28.9		. 53	10	- 10	) 26	39	0. 24		. 0.24			24 18	3	10		C. R. Noyes. U. S. Reclamation Service
Bun River Canyon Phree Forks	Teton	4,650	1 2	20. 2						34	0. 13		0.13			28	2	1		C. E. Adams.
Utica	Fergus	5,000	18	33. 2	+ 6.3	58	10	11	24	31	0, 26	- 0.29	0.19	5.0	2	28 29 24	1 3	1	W.	P. W. Korell, B. M. Bean,
ValentineValier	Teton	2,800		24.0		. 53			21 26	43	0.02		. 0.00			20	9	2	W.	Ford, Bacon & Davis.
Wall Rock Mountain	Broadwater	5,600	4								. 0.35		. 0.18				12	2	nw.	Ford, Bacon & Davis. D. L. Doig. P. O. Balgord.
Wheaton White Sulphur Springs.	Musselshell	E 900				40	10	+ - 2	2 20	32	0.07			2.0	2	19	1	ii		P. R. Wild.
Wilder	Meagher		. 2	24. 5		. 52	12	- 1	7 25	44	T.		. T.	0.5	0	13	7	11	W.	J. O. Rogers. A. J. Reed.
Wolf Creek	Lewis and Clark	3,460	8	31.2		. 51	12	- 1	1 20	25						13	# 15 # 2	8	80. E W.	F. G. Hart.
Zortman	Blaine										. 0.08		0.00	1.0		40	-	1 "		1.0.200
North Dakota.																				The same of the sa
Aplin	Oliver		. (	24.2		- 56	10		7 20	i 40	T.		. T.		0	23	4	4		J. B. Hagelbarger.
Ashley	McIntosh	2,001		21.4	+ 7.6	52				43	0.00	+ 0.3	0.67		1 0	21	6		ne.	R. C. Miles. D. J. Steiner.
Beach Belfield		2,583	1 2								. 0.00		0.00	) (	0	22	3	308	W.	E. W. Russell.
Berthold Agency	McLean	2,082	19	24.4	$\frac{14}{3} + 7.4$	57			7* 23 0 20	49   37	T.	- 0.3	) T.		0 2			7	nw.	
Bismarck	Burleigh			22.6	+ 8.6	48	110	1 - 1	9 21	35	T.	- 0.58	3 T.	T.	0	18	5	8	nw.	C. H. McCune.
Carson	. Morton		. 1	22.3	3	. 57	10	- 1	8 23	44	0.10	)	0.10				5	8	s. nw.	D. L. Basquin. L. R. Waldron.
Dickinson Edgeley	Stark	2,543			$\begin{vmatrix} + 6.4 \\ + 10.1 \end{vmatrix}$		10				0. 2	- 0.4	0. 2	5			13	1		O. A. Thompson.
Energy	. McLean		. 1								. T.		т.		. 6					N. W. Solenberger.
Epping	. Williams	2, 224			+10.1	54	1	)t - 1	2 25		. 0.00					25	5	52 45	nw.	M. E. Uggen. F. O. Alin.
FullertonGarrison	Dickey				+ 8.2	2 54			8 25						0	13				G. L. Robinson.
Haley	. Bowman	2,230	) 1	5										0 0		14	9		nw.	
Hettinger	. Adams			5 26. 4 20.					0 26		T.		T.	T.	1	18	6	1	nw.	C. P. Amsbaugh.
Howard (near) Jamestown	. Stutsman	. 1,390	) 2	20.	9 + 8.	2 50				32	T.	- 0.7		T.	1		2	1		Thos. Pettigrew.
Krem	. Mercer								3 25	37	7 7		т.	T.		2	4		sw.	C. M. Janzen. E. V. Virgin.
Lamoine		1.500		5 22. 3 20.	3	5		1 - 1	6 19	33	2   0.1	0	0.1	0 1.	0 1	1 2	3	1	3 SW.	P. E. Truden.
MAN AN CANE Y ( LIUTE )	Bowman			4 25.	9	41	Di	0	7 20	1 4					1 1	0 2	1 4	1 1	6 W.	S. P. Grane.

TABLE 1.—Climatological data for December, 1913. District No. 6—Continued.

			years	Temp	erature	, in	degr	ees Fal	hreni	heit.	Prec	cipitation	, in in	ches.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest:	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
North Dakota-Contd.																				
Marstonmoor			4	21.2		48	12	- 13	25	42	0.20	******	0.20	2.0	1				sw.	H. H. McCumber.
Medora Melville			19	24. 26	+11.9	558	11	- 120	25	38€	0.30	- 0.05	0.30	3.0	1	****				E. B. Brewster. J. P. Kidder.
fott	. Hettinger	2,424	6	22.6		56	15	- 6	20	41	0.21		0.10	2.0	3	16	9	6	nw.	O. H. Opland.
lapoleon	Logan	1,955 2,400	21		+ 8.8 + 6.4	50 59		- 14 - 7	25 20	37 56	0.55		0.45	1.0	2	15 23	6 2	10	sw. nw.	C. J. Hoof. J. M. Connolly.
ew Rockford	. Eddy	1,531	2																	J. V. M. Sundberg.
lew Salem		2, 163	8	24.6		56 56	11 10	- 4 - 5	20 20	36	0.10	*****	0.10	1.0	1	20 20	6	5	sw. nw.	J. Christiansen. J. E. Goforth.
range			2					- 0			T.		T.	T.	0				nw.	R. E. Sheriff.
Ronda	Mercer	1 057	10	22.4	. 10 0	55 49	10 12	- 6	201	43	T. 0.16	0 99	T. 0.11	T. T.	0 3	18 21	6 7	7 3	nw.	H. A. Crandall. H. S. Wood.
teele'urtle Lake			16	23.0	+10.2	53	10	- 12	20 25	37	0.11	- 0.22	0.06	1.2	2	20	4	7	w.	E. G. Ranum.
Vashburn	do	1,734	15	23.6	+ 9.2	50s		- 20 - 2	201	36g 31	T. T.	- 0.26 - 0.66	T. T.	T. T.	0	13	12		sw.	U. S. Weather Bureau.
South Dakota.	. Williams	1,875	34	22, 1	+ 9.1	50	10	- 2	24	31	1.	- 0.00	1.	1.	0	10	12	6	ow.	U. S. Westner Bureau.
berdeen	Brown	1.300	23	25.8	+ 9.3	54	12	- 10	25	40	0.03	- 0.84	0.03	T.	1	11	12	8	8.	D. G. Gallett.
cademy	Charles Mix	*******	14	30.0	+ 6.5	58	11	- 2 - 7	25	42	0.23	-0.53	0.12	0.1	4	22	2 3	7	W.	I. T. Lothrop.
lexandria	Hanson		25	29.6	+ 8.5	66 47	16	- 2 - 7 - 7	25 25	40 37	0.06	- 0.55	0.06	T. 10.2	1 4	23	3	6	se.	C. H. Stillwell. F. L. Kelso.
rdmore	Douglas	1,521	18																	T. J. Markey.
ellefourche	Butte		5	25.6		69	11	- 7	25	55	0.24	******	0.22 0.43	3.5	2 2	17 24	12	2 3	nw.	U. S. Reclamation Servi James A. Howard.
ritton	Hughes		****	23.2	******	50	9	- 16	25	37	0.00	******	0. 10	0	2	24	0	7	n.	W. S. Given.
rookings	Brookings	1,636	24	26.4	+ 7.1	58	11	- 10	25	41	0.09	- 0.46	0.09	0	1	18 17	4	9	nw.	Experiment Station. E. D. Landon.
ryantamp Crook	Hamlin	1,846	20		+ 1.8	59g	10	- 12	20	430	0.08		0.67	T. 0.4	2 2	23	7 3	7 5	sw. nw.	U. S. Forest Service.
anton	Lincoln	1,248	18	27.2	+ 5.1	58	11	- 2 - 12	21†	39	0.15		0.15	0	1	20	2	9	se.	John H. Holsey.
astlewood	Hamin	1,685 1,229	8 16	25.5		57 60		- 12 0	25 25†	43	0.10	- 0.69	0.08	T. T.	3 5	17 14	3 7	11 10	nw. se.	M. N. Bradley. Frank Williams.
enterville hamberlain			14	25 6	1 28		11	- 4	25	35	0.10	- 0.00	0.00			25	0	6	nw.	W. B. Van Horn.
lark	Clark	1.779	21	26.5	+ 7.7	53	11	- 8	25 25 20	35		- 0.45	0.12	T.	2 3	20	6	5	nw.	O. H. La Craft. Experiment Station.
ottonwood		2, 414 5, 316	5	27.6		55	11	- 5	20	44	0.38		0.24	3.0	3	16	7	8	SW.	R. P. Imes.
aviston	Perkins		3	26.6		61	10	- 6	21	40	0.12		0.10	1.2	2	22 25	6	3	nw.	Dyson Byers.
eadwoodeerfield	Pennington	4,535 6,000	4	28.1		55	10	- 2	20	36	0.32		0.15	2.2 5.3	3	25	3 7	3	W.	R. E. Grimshaw. Frank E. Miller.
e Smet	Kingsbury	1,726	20	25.4	+ 7.0	54		- 9		42		******							S.	W. E. White. M. P. Dowling.
owling	Stanley	2,250	4					0			0.60		0.40 0.23	6.8	2 5	20 22	3	8	nw.	M. P. Dowling. A. B. Wood.
ales			2								0.67		0.34	2.4	3	21	3	7	nw.	A. H. Peterson.
lk Mountain	Custer	4,700	4								0.40		0.19	5.5	4	18	6	7	nw.	James E. Blaine.
llingsonureka	McPherson	1,884	1 4	23.2	******	55b 50	13	- 8t	25	43b 38				1.0	1 2	24 16	5 10	5	SW.	Carl G. Moen. Experiment Station.
airfax	Gregory		9	29.8	+ 4.2	58	11	0	25	36	0.50	******	0.20	T.	4	22	3	6	nw.	U. G. Stevenson.
aithaulkton	Meade	2,560 1,595	18	25.0	+ 7.4	51	10	- 3	20 25	35	0.85	- 0.09	0.47	9.0 T.	3 2	12 22	13	6 8	nw.	Robert R. Saul. Miss Belle Talcott.
orestburg		1,231	21					- 11	25		0.16	- 0.41	0.08		3	20	4	7	se.	S. S. Judy.
ort Meade	Meade	3,624	30	32.3	+ 4.7	69	12	- 1	25 22	37 40°	0.30	- 0.34	0.30	3.0	1	26 19	5 7	0	s. nw.	Post Hospital. A. M. Alexander.
oldfieldreenmont			4		*******			- 3				*******	0.10	5.5	3 4	23	3	5	nw.	H. C. Hoffbuhr.
reenwood	Charles Mix	******	19	30.7	+ 4.7	61	11	2	251	39	0.22			1.0	3	16	8	7	e. sw.	T. C. Williamson. Henry L. Theimann.
ardingrove	Lawrence	6,600	3								0.57		0.41	5.5	2	19	5	7	bw.	Rufus J. Pilcher.
arveys Ranch	do	6,282	3								0.20		0.20	2.5	1	22	2	7	w.	Jerome Harvey.
ermosaighmore	Custer	3,278 1,890	7 20		+ 4.1 + 7.1	62 50	10		19†	40 38	0.24	- 0.40 - 0.12	0.22	2.5	2 4	18 22	10	8	S. SW.	S. M. Booth. Experiment Station.
opewell	Stanley		3	27.6	T 4.1	54	10	- 1	201	36	0.32	******	0.15	2.2	4	22 17	7	7	W.	E. R. Myers.
ot Springs	Fall River	3,443 1,564	01	30.8	+ 5 0	58 51b	13	- 111	21† 25	38 42b	0.71	- 0.39	0.35	5.5 T.	4 2	19 20	2 2	10	n. se.	John S. Goodrell. J. J. Cox.
oward		*******	21	25.2	$+5.9 \\ +8.1 \\ +10.9$	57 57	194	- 14	25	49	0.08	- 0.49	0.04	T.	3	23	2	6	nw.	M. A. Shuster.
uron	Beadle		31	26.6	+10.9	57	11	- 10 - 17 - 4 - 6 - 3 - 15	25 25 25 20 25 25 25 25 25 20	38	0.05	- 0.57 - 0.24	0.05	T. T.	1 2	18 13	3	10 7	S. W.	U. S. Weather Bureau. H. J. Dailey.
swichadoka			16		+ 9.2	56 56	10	- 4	20	41 45	0.39		0.06	3.0	4	18	4	9	nw.	Rev. Glenn H. Shaw.
ennebec	Lyman	1,689	20 27	28.0	+ 7.0 + 6.9 + 9.9	58 58	10	- 6	25	45	1.10	+ 0.66	0.60	0.5	4	22 23	2	7	nw.	R. C. Van Horn. G. D. Rose.
imball	Brule		27 16	28.8	+ 0.9	58 52	9	- 3 - 15	25	37	0.05	- 0.55 - 0.36	0.05	T.	1	23	2 3	6 5	nw.	E. L. Ebbert.
ead	Lawrence	5,200	4	31.3	7 0.0	60	10	2	20	43 34	0.42		0.20	3.9	4	23	4	4		Herbert Fuller.
arion	Perkins	2,345	12	28 8	+ 7.5	60	11	_ A	25	39	0.20	- 0.47	0.20	2.0 T.	1 4	23 15	6 7	9	nw.	George P. Chapman. M. H. Dains.
arston	Sully		5	23.4	T 1.0	48	10	- 4 - 5 - 5 - 14	25 25 20 25 24 25† 25†	34	0.56		0.28	T.	3	12	11	8	nw.	J. W. Kozel.
eadow	Perkins		10	25.2	1 7 6	58 55	10	- 5	20	37 43	0.23	_ 0.90	0.23	2.5	1 3	22	4	5	nw.	Hillard Wybenga. Frank A. Howe.
ellette	Hutchinson	1,325	18 16	28.8	+ 7.6 + 7.0	58a		- 14	24	38"	0.63	- 0.03	0.53	T.	2				nw.	J. S. Headley.
ilbank	Grant	1,148	22	25.4	+ 6.9	63	12	- 10	25†	53	0.11	- 0.29 - 0.03 - 0.63 - 0.67	0.11 T.	T. T.	0	19	7	5	nw. sw.	Miss Mary Patridge. C. W. Downey.
itchellobridge	Davison	1,312	19	21.5	+ 5.9	58	11	- 5	20	38	Т.	0.07		1.	0		4	6		Thomas J. Morris.
urdo	Lyman	2,300	5	30.0		58	11	2	20†	34	1.00		0.50		2	26	0	5	nw.	L. C. Bode. J. E. Strouse.
alrichs		3,339 1,600	21	25.4	+ 0.4	46	8	4	25	31	0.95	+ 0.22	0.40	8.0	4	17 24	7	7 6	SW. Se.	H. P. Camp.
nida	Sully	1,921									0.50	******	0.25	T.	2	19	4	8	nw.	E. E. Heywood.
rman	Butte	2,920	7	26.8		53	9† 15		25 21	40	0.24 0.67	*******	0.22	3.7	2 2 2	15	12	8	nw.	U. S. Reclamation Service J. W. Bretz.
ttumwaarkston	Hutchinson	1,400	5	25.0		47	10		21	42	0.72		0.41		3	10	2		******	W. C. Rempfer.
earl Creek	Beadle	******					11	*****	0	91	0.01		0.01	0	1	20			sw.	Charles Miner. U. S. Weather Bureau.
ine Ridge	Hughes	1,572	21 7		+ 8.5	55 47	11 16	- 1 2	25 29	31 38	0.43	- 0.07	0. 19	0.5 6.2	3 7	20 19	3 4	8	S.	W. A. Spencer.
ankinton	Aurora	1,528	19								0.21	- 0.41	0.10	T.	3	16	10	5	nw.	W. G. Andrews. J. H. Jones.
ollockapid City	Campbell	3,251	7 25	23.0	+ 5.3	51ª 39	12 10	- 2°	23 20	41b 32	0.40	- 0.17	0.25	2.0	2 4	17 18	6 5	8	nw.	U. S. Weather Bureau.
edfield	Spink	1.295	15	24.8	+ 7.6	55	15	- 11	25	40	0.02	- 0.37	0.02	0	1 2	23 15	1	7	SW.	A. S. Hall.
ochford	Pennington	5,228	3		+ 3.8		100			900	0.27	+ 0.18	0.20	3.0	6	15	14	7 2 7	nw.	Mrs. M. E. Deffenba W. M. Ege.

Table 1.—Climatological data for December, 1918. District No. 6—Continued.

			years	Temp	erature	, in d	egree	s Fah	renhe	eit.	Prec	ipitation	, in inc	ehes.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Мевп.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
South Dakota-Contd.																				O O Floren
Roslyn	Day Minnehaha	1,200	7 22	24.2	+ 8.8	52 59	12 13	- 17 - 3	25 25	34	0.32	- 0.65	0.30	0.2	3	19	6	8	SW. 80.	O. O. Floren. J. H. Bechtold.
orum	l'erkins		2						20	33	0. 16	- 0.71	0.16	1.0	1 2	24 22	7	5 2 5	nw.	M. S. Eberhart. A. E. Johnson.
pearfish	Lawrence	3,647 1,840	24	25.6	$+0.5 \\ +6.5$	50	10 11†	- 10	25	38	0. 35	- 0.18	0.17	T.	3	23 17	3		nw.	Rev. A. Mattingly. E. J. Lehman.
ama	Meade		3	25.7		55	10+	- 2 - 1	22†	43	0.25		0.25	3.0	1	17	8 23	6 3	nw.	W. E. Prann.
imber Lake	Dewey	2,163 1,418	16	23.4	+ 4.5	57 64	11	- 1	22† 20 25	35 40	0.87 $0.32$	- 0.28	0.87	6.0	4	19	5	7	nw.	F. F. Chladek.
ale	Butte	$\frac{2,765}{1,222}$	5	25.8	+ 6.7	57	10	- 4	201	44	0.27	0.50	0.26 0.23	3.5	3	10 21	18	3 8	nw.	U. S. Reclamation Service Prof. E. C. Perisho,
ermilion	Clay	4,000	12	30.8	+ 6.7	60	11	- 9	25	39	0.31 $0.31$	- 0.50	0.23	5.0	3	22	5	4	nw.	George Waters.
atertown	Codington	1,735	19	25 4	1489	57	11†	- 10	25† 25	43	0. 13	- 0.32 - 0.53	0.12	T.	1	19	3	9 8	S. S.	Robert Q. Wood. R. C. Zimmerman.
Ventworth		1,646	20	27.7	+ 9.6	57	11†	- 6	25	40	0.08	- 0.55	0.08			1	16	14	n.	Mrs. G. A. Rogers.
Vhite Lake Vinner		2,000	1	29.7		60	10+	- 4	19†	39	0.74		0.62	T.	3	19	5	7 7	SW.	J. W. Barnum. Fred E. Kirch.
Vood	Mellette	1,234	39	30.1	+ 7.8	58	10†	- 4	25 25	42 36	0.93 $0.27$	- 0.46	0.49	1.2	4	19	6	10	w.	U. S. Weather Bureau.
ankton	Yankton	1,201	og	30.0	T 1.0	01	11	-	20	00	0.2.	0. 10	0,20	-	1	1				
Minnesola.								_	0.5	32	0.09	0.20	0.09	0	1	22	4	5	sw.	A. L. Doan.
Colorado.	Pipestone	1,710	12	28.0	+ 9.1	57	11	- 7	25	02	0.09	- 0.32	0.09		1					
rriba	Lincoln	5,243	7	22.4		46	4	- 4	20	29	5.39		3.20	22.8	7	17	5	9	nw.	C. A. Creel.
uldhurst	Teller	8,500	3						21	36	3.92	+ 3.49	1.68	54.5	10	16	20	5	86. W.	Harry Dunmire. Prof. J. A. Hunter.
oulderurlington		5,347 4,160	17	26.8 22.8	- 7.9 - 6.3	50 42	10+		21	24	3.83	+ 3.39	1.30	26.0	7	16	6	9	nw.	W. P. Davis.
assells	Park	8,445	3								2.57		0.86	38.8	9	23 16	3 9	5	w. ne.	Charles F. Deininger. Thos. P. Vaughan.
astle Rock		6,220	21 10	17.8 24.0		49 51	31 30	- 19 - 6	21 22	52 45	4.82	+ 4.56 + 4.40	1.50	48.2	9	15	10	6	S.	Denver Union Water Co
heesmanheyenne Wells		4,279	21	25.0	- 4.8	50	7	2 0	30	41	2.72	+ 2.28	0.98	9.5	6		6	7	nw.	J. W. Adams. U. S. Weather Bureau.
enver	Denver	5,272		23.2		52	31	- 94	21 21†	37 52 i	5.21	+ 4.61	2.29	57.4	7	177	8 01	6 34	8.	Dr. H. Schwatt.
Edgewater Estes Pk. Fish Hatch.	Jefferson	5,450 8,000	1 4	19.6		45	31	- 94	211		2.95		1.47	56.0		15	81	78	W.	G. H. Thomson.
ort Collins	do	4,985		16.9			15	- 13	22	42	4.08		1.71	38.8		17	61		nw.	Colorado Ag. College. C. B. Benedict.
Fort Lupton (near) Fort Morgan	Morgan	4,907	15	*****							3.85	*******	1.01							Great Western Sugar Co
rances	. Boulder	9,300	8	24.6		. 51	111	3	20	31	7.08			85.2 65.0			14		W.	C. W. Barry. Norman W. Fry.
Frys Ranch	Clear Creek	7,500 8,550	111	21.0		. 44	71	- 9	22	41	5.90 4.17			87.0	6	18	7	6		H. L. Corbett.
Grover (near)	Weld	4,649	22	17.8			7	- 14	26 25	51	4.79	+ 4.50	1.30		8	21 18	2	8 9	nw.	Kenneth Shaw. D. M. Porter.
Grover (near)	Park	5,076 8,892	9				11	- 11	20	38	3.15		0.85			13	4	14	nw.	Emily Kleinknecht.
Tawthorne	Boulder	6,000	4								6.60		. 3.21	55.0	6	23 21	3	5 9	nw.	B. E. Chesebro.
Holyoke (near)	Phillips	3,745 7,543	17 23	19.8	- 8.2 - 5.8	45	15	- 12 - 2	231	44	2.99 4.92		1.17	8.0 65.0		8	17		W.	J. J. Willis.
Holyoke (near) daho Springs fulesburg	Clear Creek Sedgwick	3,465															110	3	w.	Great Western Sugar Co Do.
Kersev	.   Weld	4,571 5,053	22		1						4.46 3.86		2.00	28.8	6	1	13			P. A. Taft.
La Porte Le Roy (near)	Logan	4,380	24								3.54	+ 3.09	1.05	15.9	9	12	9	10		Charles Green. Great Western Sugar Co
ongmont	. Boulder	4,950 8,600			$\begin{bmatrix} -10.5 \\ -5.0 \end{bmatrix}$	53	30		201	56 53	4.23		2.45	29.8 69.0		15	12	5	nw.	Enos A. Mills.
Longmont. Longs Peak (near) Merino.	Larimer Logan																			Great western Sugar Co
Moraine	. Larimer	7,775	23		- 6.2						4.76	+ 4.22		. 58.0	6	20	0	11	W.	Charles A. Chapman. Denver Union Water Co
Platte Canon	Jefferson	7,750	14								3.56	+ 3.01	1.35	45.0	4	20		6	W.	Miss E. S. Cornelison. T. E. Bruce.
Sedgwick	. Sedgwick	3,539	5	24.5		. 50	1	- 3	30	36	1.75		. 0.69		. 4	10	7	8	w.	City Engineer Boulder.
Silver Lake Spicer (near)	Boulder	10,500 8,700																		Frank W. Murphy.
Sterling	Logan	3,892	4			. 41	4	- 6	30	34	2.33		. 1.03	10.0	7	16	5	10	nw.	Great Western Sugar Co. P. H. Boothroyd. J. C. Tuomey.
Waterdale Wray	Yuma	5,206 3,512			- 3.1	46	1	3	30	32	3.73		1.75		. 5	17		8	W.	J. C. Tuomey. Matthew Harr.
Yuma	do	4,138	22								2.40	+ 1.95	1.05	4.8	6	20	5	6	nw	atactiew mair.
Nebraska.			1.			1_			-				0.50			7 13	3 11	7	sw.	John M. Cotton.
AinsworthAlbion	Brown	2,521 1,747	17	28.8	+ 2.	53			21	37	3.80	+ 2.92	1.78	2.0	) (	6 16	3 1	14		F. M. Weitzel.
Alliance	Boxbutte	3,968	21	16.2	- 9.6	6 34	15	+ - 8	21	32	1.10	+ 0.68	0.50	7.	5 8	5 19	9 6	8 6	SW.	J. A. Keegan. W. A. Sharpnack.
Alma	Harlan	1,939 2,186	16		+ 0.1	1	10	- 2	26	31	4.63	$\frac{1}{2} + \frac{3.92}{4.10}$	1.20	4.1	0 1	6 1	4	7 10	nw.	J. L. Owen.
ArcadiaArden			. 3								. 3.18	3	1.00	2.0	0 1	7 2	0   3	3 8		
Arden	Saunders	1,100 2,061		33.1	+ 6.	2 54	12	6	26	25	3.0		1.8	9		6 1	7	4 10		F. Rein.
AshtonAtkinson		2,108	8 8	29.					28	39	0.4	5	0.2	2 0.		4				C. J. Wilson. J. R. Huffman.
Auburn	Nemaha	1,051	21	34.	1 + 4.	2 56	12	- 5	26	30	4.3	9 + 3.2	1 1.4	0 5.	0	9 1		1 13	3 n.	A. D. Travis.
Aurora Beatrice	Hamilton	1, 235	5 25	33.		4 5	5 3		26	33	4.7	6 + 3.5	6 1.3	8		0 1		0 1	8 S.	H. E. Palmer. T. M. Davis.
Beatrice Beaver City	Furnas	2, 147	22	2 28.	$\begin{array}{c c} 0 & -2. \\ 0 & +7. \end{array}$	4 5	2 3	3 (	21 26		4.7	$5 + 4.0 \\ 1 + 1.2$	$ \begin{array}{c c} 8 & 1.0 \\ 2 & 1.1 \end{array} $		0	7 1 6 1	7 4	6 1		A. A. Tyler.
Bellevne Benkelman	Sarpy Dundy	2, 968	3			- 3														R. D. Druliner.
Bertrand	Phelps	2, 515	5	8		2	4		2 20	6 29	3.9 a 2.1		9 1.1		0			5	7 nw. 9 sw.	D. C. Van Deusen.
Blair	Washington			8 31.	4 + 5.	3 5	4 1		2 20											H. C. Mead.
BlakeBloomfield	Knox			8 28.			8 1	1 -	2 2	6 34	3.6	6	2 2.3						7 sw.	E. C. Roggy.
Bradshaw	York	. 1,71	5 1	6							1.7	8	0.7	5 2.	0	8 1			8 SW.	W. S. Turnbull.
Brewster Bridgeport	Morrill	3,65	8 1	7 19.		5 4	0 3			5† 39	30 2.3	0 + 1.6	7 1.3	10 8.	0	3	24	0	7 w.	R. V. McCall.
Broken Bow	Custer	. 2,47	7 1	9 29.	7 + 1.	4 5	5	9 -1	2 2	0 39	5.3	2 + 4.6	4 2.4	4.	5					Henry Middendorf.
Bruning	Cherry Garfield		4	7 28.	2	5	8 1	0 -	1 2	1 4	5 1.		1.			1 3	21	1	9 W.	H. A. Davis. W. L. McMullen,
Burwell	Garfield.	. 2,18	0 2	1	8			i -		6† 3	0.2	4 + 3.4	13 1.8	0 T		4 .	21	3	7 nw	

Table 1.—Climatological data for December, 1913. District No. 6—Continued.

			years.	Tem	perature	, in	degre	ees Fal	hrenl	heit.	Prec	cipitation	, in in	ches.	days,		Sky.		direc-	
Stations,	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	rainy or m	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	pu	Observers.
Nebrasks-Continued.																			Management	
Cairo	Hall	1,951	5								5. 62		2.00		7					Elliott Harrison.
Callaway Cambridge	Custer Furnas	2,555 2,258	7	28.7		52	3	- 1	23	33	5. 05		1.35	4.0	7	18	2	11	sw.	J. H. Evans. Chas. Jensen.
Columbus	Platte	1,442										*******								A. L. Rush.
Crete	Saline	1,368 2,565	31 27	32.0	+ 4.0	52 50	3†	1 2	26†	29 36	4.90	+ 4.03 + 3.15	1.72	3.8	8	16 18	3	12	s. nw.	Doane College. Homer L. Nye.
Curly	Sioux		5				91				1. 23		1, 14	4.0	6	10		12	MW.	A. E. Hann.
Curtis Dalton	Frontier Cheyenne	2,553 4,273	16	32. 2	+ 3.3	60	15	4	22	44	6.03	+ 5.20	1.34	4.0	7	19	4	8	SW.	Dr. S. R. Razee. J. C. Frandsen.
David City	Butler	1,619	25	31.4	+ 4.5	50	3†	0	26	33	3.49	+ 2.54	1, 24	4.5	8	18	4	9	ne.	S. Clingman.
Du Bois Damas	Pawnee	1,074	9 5	29.2		60	11		26	42	4.88		2.02	1.0	10	11	6	14	SW.	O. M. Backus. Emile Raes.
Elm Creek	Buffalo	2, 268	6				11	- 1	20	9.0	2. 11 5. 60	*******	0.60	1.0	5 7	21	3	7	nw.	E. L. Sutton.
Elsie Ericson (near)	Perkins	3,382 2,029	22								0 00									J. F. Brittain.
Ewing	Holt	1, 888	23	29.0		63	11	- 2	21	41	3.66	+ 2.95 + 0.46	0.55	1.0	6	19	4	8	80.	J. A. Bodyfield. G. H. Benson.
ExeterFairbury	Fillmore	1,607	20																	Frank Ainsworth.
Fairmont	Jefferson	1,316 1,641	38 21	33. 2	+ 4.3 + 3.3	55 53	12	3 2	26	28 26	4. 20	+ 3.38 + 2.62	1.44	2.0 3.0	8 9	12	8	12 11	90. S.	W. F. Cramb. C. B. & Q. R. R. Co.
Fails City	Richardson	898	18	35. 9	+ 6.3	58	1	2	26 26	29	4. 10	+ 3.12	1.54	2.0	6	14	3	14	ne.	C. B. & Q. R. R. Co. Dr. J. C. Yutzy.
Fort Robinson	Dawes Franklin	3, 764 1, 820	31 23	21.3	-5.9 + 0.8	58 53	31	- 5 1	21 25	42 34	4, 41	+ 3.69	1.15	3.5	7	16	6	13	SW. W.	Post surgeon. A. R. Peck.
Fremont	Dodge	1, 203	33	31.9	+ 6.1	54	12	5	26	31	2.29	+ 1.24	0.85	T.	6	19	3	9	nw.	Ernest Hahn.
FullertonGeneva	Nance	1,629 1,633	13 24	29. 0 32. 4	+ 4.0	52 54	14	- 3	21 26	32a 31	4. 90 4. 30	+ 3.70 + 3.37	2.52 1.66	2.0	6 9	19 12	9	8	S. SW.	Dr. F. W. Johnson. F. M. Flory.
Genos	Nance	1,584	38	30.6	+ 5.5	53	11	1	26†		4. 17	+ 3. 23	1. 42	2. 0	9	20	2	9	SW.	F. W. Parsons.
Gordon	Sheridan	3,550	12		*****						4 59	1 0 00	1 40			10				G. F. Williams, E. H. Stoll.
Gothenburg	Dawson	2,557	20	29.4	+ 0.5	51	3	2	21	30	4.51	+ 3.69 + 3.25	1.43	4. 0 2. 0	8	16 22	3	11 6	n. w.	S. S. Kaufman.
Grand Island	Hall	1,860	23	31.0	+ 1.8	52	11†	4	21	26	5.00	+ 4.15	1.60	5.0	9	17	1	13	n.	E. A. Barnes.
Grant	Perkins	3,405 2,021	10	25. 4		46	2	- 1	23†	37	2.80 3.75	+1.97 $+2.90$	1.44	2.0	5 7	20 17	6	10 8	nw.	Anson K. Holmes. W. E. Morgan.
Guide Rock	Webster	1,646	14								4.75	+ 3.82	1.65	2.0	8	11	4	16	*****	J. S. Marsh.
Haigler Halsey	Dundy Thomas	3, 258 2, 695	11	28, 8	+ 0.9	59	ii	- 9	21	40	1 00	+ 1 10	1, 09	1.5	8	22				J. L. Pember. Bureau of Forestry.
Hartington	Cedar	1,309	22	30.0	+ 6.1	58	14	- 2 - 1	26	35	1.99	+ 1.19 - 0.58	0. 13	1.5	6	14	9	8	se. nw.	D. E. Ewing.
Hastings Hayes Center	Adams Hayes	1,932	24 20		+ 3.5	54	3	, 3	26	26	4.93	+ 4.11	1.53	3.5	8	19	1	11	SW.	C. B. & Q. R. R. Co. Jos. M. Crosby,
Hay Springs	Sheridan	3,821	26	22.0	- 2.8	48	10	- 3	23† 22	26 32	6. 18 1. 75	+ 5.31 + 0.99	2, 20 0, 50	12.0 8.0	6 5	19	3 7	9 8	w. nw.	A. Kadlecek.
Hebron	Thaver Boxbutte	1,458 4,256	28		+ 2.5	53	3	3	26†		4.29	+ 3.51	1.62	2.0	9					Dr. C. M. Easton.
Hendley	Furnas	2, 231	10					*****			1.07	+ 3.72	0.59	6.0	6					A. S. Enyeart. T. L. Jones.
Hershey	Lincoln	2,902	3								3. 10		0.85	6.5	7	16	2	13		G. F. Palmer.
Hillside Holdrege	McPherson	3, 484 2, 324	23	28, 6 30, 8	+ 1.7	51 52	12 10†	- 2 - 2 - 2	21	42 27	3. 38 4. 19	+ 3.49	2. 29 1. 15	4.8	8	16 15	5 6	10	ne. n.	Mrs. M. R. Lloyd.
Hooper	Dodge	1, 228	16	29.6	+ 4.7	55	11+	- 2	26 27	35	1, 55	+ .0.72	0.51		7	16	1	14	nw.	C. B. & Q. R. R. Co. Dr. W. H. Heine. Mrs. W. P. Miller.
Hull (near) Imperial	Banner Chase	3, 278	23	25, 9	- 2.7	46			99	20	2.63	1 9 10	1.60		5 8	21 15	2	8	SW.	Mrs. W. P. Miller. Robt. Malcolm.
Kearnev	Buffalo	2, 146	25		+ 1.8	46 54	14	- 1	23 26†	29 28	3.85 4.62	+ 3.12 + 3.98	2. 10 1. 55	4.0	8	18	8	8 10	nw. sw.	City Engineer.
Kimball Kirkwood	Kimball		25 19	20.5	-9.0 + 4.7	44	31	- 5	25	35	2.53	+ 1.91	1.00	15.5	6	21	4	6	W.	F. J. Bellows.
Kowanda	Garden		5	29.8	T 2. /	62	11	0	28	42a	0.54 1.87	- 0.13	0.30	Т.	4 7	18	6	7	w.	Mrs. C. Arter. Geo. W. Hulse.
Lexington	Dawson	2,385	25	30. 4	+ 2.0	51	11†	1	21	30	3.93	+ 3.16	1.31		8	22	0	9	SW.	Robt. Chadwick.
LincolnLodgepole	Lancaster Cheyenne	1, 189 3, 820	32 15	33.5	+ 6.6	54 43	3	- 3	26 25	25 33	4.03	+ 3.36 + 1.69	1.84	1.1	9 7	16 18	12	11	s. nw.	U. S. Weather Bureau. R. T. Kidney.
Loup City	Sherman	2,067	19		- 5.4 + 1.6	54	11	- 8	21	44	5.54	+ 4.80	1.80	3.0	8	24	1	6	ne.	Harriet Hayhurst.
LoyalLynch	Custer Boyd	*******	16									- 0.20	0.12	7.0	6	18	7	6	sw.	Jas. H. Bailey. Anton Basta.
McCook	Redwillow	2,506	19	28.3	- 0.3	50	3	2	23	31	3. 19	+ 2.62	0.90	2.0	9	20	4	7	n.	E. J. Brady.
McCool Junction Madison	York Madison	1,575	16 22	28.8	+ 3.6	55	17	- 3	21+	30	4, 86 2, 26	+ 3.85 + 1.38	2. 13 0. 91	4.0 2.0	7 6	19	4	8	nw.	L. L. Slagel. Dr. F. A. Long.
Marquette	Hamilton	1,830	34	40.0							4.34	+ 3.57	1.58	4.5	8					John Ellis.
Mary	BrownCuster	2, 257	3 14								2. 13 5. 65	+ 4.61	0.80 1.60	T.	7 6	17	5	9	nw.	G. C. Stufft. J. A. Amsberry.
Minatare	Custer Scotts Bluff	3,825	4								1.71		0.50	2.0	7	20	6	5	nw.	A. Kennedy.
Minden	Kearney Scotts Bluff	2, 169 3, 950	36		+ 3.0	51 44	3†	$-10^{3}$	26 25	25 38	5.04	+ 4.22	1.45 0.30	2. 8 5. 0	11 6	12 21	10	9	SW.	Joel Hull. U. S. Reclamation Service
Mitchell. Nebraska City	Otoe	941	35	33.3	+ 5.6	56	11+	4	26†	34	4.55	+ 3.58	1.58	6.0	7	13	3	15	nw. 90.	C. B. & Q. R. R. Co.
Nelson	Nuckolls	1,683	3	32.3	1 5 0	54 58	11	0	26	30	5.39		2.00	2.0	7	20	0	11	SW.	C. B. & Q. R. R. Co. Mack I. Koser.
North Loup	Madison	1,532 1,961	27 26	30. 2	+ 5.9 + 3.3	58 60	11	- 7	26 21	37 38	1.90	+ 1.08 + 4.00	1.12	0.5 2.5	5 6	21 15	1 6	9	s. nw.	Dr. P. H. Salter. W. G. Rood.
North Platte	Lincoln	2,841	40	28.6	+ 2.0	51	12	5	22	33	3.09	+ 2.62	1.45	1.9	8	14	7 3	10	W.	U. S. Weather Bureau.
Oakdale	Antelope	1,722 1,103	26 42	34.9	+ 2.9 + 7.1	53	11	0 8	26† 25	32 21	1.86 2.19	+ 1.11 + 1.28	1.03	0.5	5 9	19 14	3 6	9	8.	G. S. Clingman. U. S. Weather Bureau.
O'Neill	Holt	1,975	15	04.2	T 1.1		11		20	21	0.53	- 0.15	0.23	0.5	3	18	3	10	s. nw.	L. E. Best.
ord	Valley	2,062	19								5. 25	+ 4.40	2.12		8	17	4	10	n.	Jas. Milford.
Orleans	Harlan	1,993 1,644	11	30. 2		54	3	- 6	23	35	5. 20 1. 03	+ 0.46	1.50 0.60	6.5	6 4	18	3	10	nw.	Jas. McGeachin. G. T. Ray.
Oshkosh	Garden	3,393	1	25. 2		47	6	- 1	23†		2.35		1.11	4.8	6	18	1	12	nw.	Robert Quelle.
Palisade	Hitchcock	1,175	18	34.3	+ 4.6	58	12	0	26	42	3.03 4.62	+ 3.53	2.02	2.5	6	12	6	13	s.	E. E. Young. F. A. Barton.
axton	Keith	3,060	4	27.4	7 4.0	51	2	3	23†	36	2.88		1.63	2-0	7	19	3	9	W.	C. F. Coy.
Plymouth	Jefferson	1,419	10 12	32.0	+ 3.4	53 61	2	3	26 21	30 40ª	3.78	+ 2.70 + 1.12	2.76 1.17	0.7	5 7	14 21	5	12 10	sw. nw.	Dora Ruppel. T. C. Jackson.
(avenna	Buffalo	2,028	36	28.8	+ 0.6	54	10	- 4	26	32	4.99	+ 4.22	1.68	6.0	8	22	0	9	nw. sw.	H. G. Smith.
ted Cloud	Webster	1,687	21	32. 2	+ 3.8	53	11†	0	26	31		+ 3.35	1.45	2.5	9	17	4	10	nw.	Chas. S. Ludlow.
St. Libory	Howarddo	1,887 1,796	19	30.0	+ 1.8	55	11	- 3	21	29	4.19	+ 3.49	1.41	3.0	7	20	3	8	sw.	W. I. Meader. Paul Anderson.
Santee	Knox			28 fig.	+ 4.7	65s	11	- 18	25	428										A. M. MacGregor.
Schuyler	Colfax	1,357 3,888	21 25	31.2	- 8.6	54 40	12†	- 2 - 9	25 26 25 26	30 37 27	2.95	+ 2.03 + 1.66	1.10	1. 2 16. 2	7 8	22 22	1 2	8 7	nw.	F. W. Shonka, jr. A. B. McCoskey.
Seward	Seward	1,435	23	20.3 31.8	+ 3.5	52	13	- 0	26	27	4.11	+ 3.22	1.42	2.0	9	12	9	10	atw.	C., B. & Q. R. R. Co. John P. Fischer.
Sidney	Cheyenne	4,090 1,052	21									+ 2.78	1.30	22.0	8 7	10			nw.	John P. Fischer.

TABLE 1.—Climatological data for December, 1913. District No. 6—Continued.

			ears.	Temp	perature	, in	degre	es Fa	hreni	heit.	Prec	cipitation	, in in	ches.	lays,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	1	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy of 0.01 inch or mor	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind d	Observers.
Nebraska-Continued.																				
Springview Stanton Stapleton Superior Syracuse Table Rock Tecumseh Tekamah University Farm Upland Valentine	Nuckolls Otoe Pawnee Johnson Burt Lancaster Franklin Cherry	1,472 2,804 1,574 1,059 1,023 1,113 1,060	22 1 16 30 21 25 33 22 24 1 25	32.8 33.8 31.3	+ 5.1 + 5.6 + 4.2 + 5.1 + 4.3 + 4.8	55 54 56 55 54 54 57	11 1† 12 14 11† 12†	- 3 - 1 - 6 - 1 3 2	26 22 21 21 26 26 26 21	36 40 34 33 33 26	2. 62 3. 40 4. 05 4. 14 4. 42 3. 75 1. 48 4. 03 5. 24 0. 88	+ 0.94 + 2.80 + 3.37 + 2.87 + 3.36 + 2.80 + 0.39 + 3.08 + 0.26	1. 20 1. 00 1. 18 1. 20 1. 58 1. 61 1. 40 1. 03 1. 50 1. 47 0. 41	2.0 2.7 3.0 2.0 6.0 4.0 1.4 0.5 1.1 1.0 0.7	3 6 6 7 8 11 7 6 8 7	15 13 18 15 13 16	4 4 3 5 8 6	12 14 10 11 10 9	SW. Sw. e. n. S. w.	C. L. Phelps. Alfred Pont. F. E. Peterson. Miss Stella Vennum. F. V. Bishop. W. N. Hunter. E. D. Howe. Dr. C. H. Davies. Dr. A. D. Nesbit. S. W. Perin. L. P. Zettle. U. S. Weather Bureau.
Wahoo. Wakefield. Walthill. Watertown. Wauneta Weeping Water. Westpoint. Wisner. York.	Dixon. Thurston Buffalo Chase Cass. Cuming do	1,387 2,299	11 20 10 8 14 36 28 17 24	30. 1 32. 4 32. 4	+ 6.3	56 52 57 54 53	11 11 3† 11†	0 1 - 2 4	26 26 26 26 26†	36 31 35 32 33	4. 10 1. 07 1. 49 4. 53 3. 25 3. 96 1. 81 2. 30 4. 46	+ 2.91 + 0.21 + 0.65 	1. 72 0. 75 0. 99 1. 49 1. 65 1. 64 1. 28 1. 45 1. 77	T. T. 4.0 6.0 1.0	6 5 7 5 7 4 4 9	21 21 19 18 15	5	10 9 9 6 11	nw. n. nw. nw. nw.	W. T. Mauck. I. H. Weaver. G. A. Dudley. R. E. Swift. C. D. Fuller. S. W. Orton. J. C. Elliott. F. C. Evans. A. T. Giauque.
Afton Allerton Alton Atlantic Audubon Bedford Centerville Chariton Clarinda Corning Corydon Council Bluffs	Wayne Sioux. Cass. Audubon. Taylor. Appanoose. Lucas.	1,301	19 11 8 22 19 13 3 18 23 21 20 3	33. 2 34. 5 27. 6 32. 6 30. 4 33. 0 34. 2 32. 8 31. 2 31. 6 34. 2	+ 7.5 + 8.0 + 7.7 + 6.5 + 7.3 + 6.5 + 4.6 + 4.5 + 7.5	55 56 55 53 58 55 59 56 56 55 59	2 1† 11 4 1 1 3 1 2 2 3	- 13 5 5 5 - 13 2 1 - 4 8 2	22 21 21 22 22 21 21† 21† 21† 21† 21†	27 28 38 27 24 51 27 29 38 33 27	0. 07 1. 53 1. 54 2. 33 2. 20 1. 29 4. 73 4. 70	+ 1.03 + 0.78 + 0.38 + 0.58 + 1.39 - 0.05 + 3.61 + 3.56 + 0.82	1.30 0.79 0.04 0.93 1.20 1.05 1.08 1.37 1.63 0.90	2.0 3.8 T. 0.8 0.5 7.6 6.5 1.0 7.5 5.0 2.3	5 9 2 8 6 7 6 3 8 7 9	13 11 21 12 16 11 18 12 15 17 8	6 2 1 4 3 4 7 3 1 2 5	12 18 9 15 12 16 6 16 15 12 18	sw. n. sw. ne. sw. sw. sw. ne. sw.	N. W. Rowell. Maude Chase. W. S. Slagle. Thos. H. Whitney. Geo. E. Kellogg. E. E. Healy. Gordon Peacock, jr. C. C. Burr. A. S. Van Sandt. Jerome Smith. May C. Miller. B. W. Crossley.
Council Billis Creston Cumberland Denison Elliott Greenfield Harlan Inwood Lake Park Lamoni Le Mars Lenox Leon Little Sioux Logan Mount Ayr Murray Northboro Odebolt Onawa	Union. Cass. Crawford. Montgomery. Adair. Shelby. Lyon. Dickinson. Decatur. Plymouth. Taylor. Decatur. Harrison. do. Ringgold. Clarke.	1,312 1,180 1,182 1,474 1,479 1,120 1,250 1,120 928 1,236 1,216 1,046 1,356	3 8 14 19 8 21 14 9 6 17 18 11 8 46 20 22 1 16 13	32. 3 32. 6 31. 1 28. 3 29. 2 34. 5 29. 5 32. 4 32. 6 33. 6 33. 6 33. 6 33. 4	+ 7.1	59 54 55 55 52 60 59 57 53 55 65 55 56 55 56 55 55	3 11 2 12† 2† 11 11 11 1† 2 11 11 11 1† 11 11	- 1 2 3 5 3 3 3 3 3 1 1 2 2 2 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	21 26 21† 21 25† 25 21 26 21 21 26 21† 21 22 25 25 25 21 26 21† 21 25 25 25 25 25 25 25 25 25 25	30 30 30 29 28 36 35 38 32 25 24 34 35 26 26 29 29 32	2. 40 1. 70 1. 82 0. 12 0. 00 3. 39 0. 15 2. 39 2. 59 1. 35 1. 56 2. 44 1. 91 3. 54 0. 56	+ 0.69 + 0.49 + 0.45 + 0.92 - 0.67 + 1.32 + 1.32 + 0.29 + 1.15 + 0.86 - 0.28 + 0.72	1. 30 0. 94 0. 56 1. 03 1. 00 1. 23 0. 06 0. 07 1. 05 0. 98 1. 05 1. 15 1. 27 0. 77 1. 20 0. 45	2.0 T. 0.5 0.5 2.5 T. 0 4.5 0.5 4.0 2.0 5.7 5.0 2.0 6.5 T.	8 4 6 5 8 6 3 0 6 3 5 8 6 5 6 7 6 2 6	16 20 15 14 22 21 16 21 15 10 17 19 11 12 20	7 8 1 3 0 1 1 2 3 4 3 8 2 2	13 10 9 9 8 7 15 9 15 19 11 8 17 11 14 9	ne. sw. s. ne. sw. s. s. s. nw. se. nw. sw. sw. sw.	B. W. Crossiey. O. J. Colby. J. H. Reppert. W. C. Van Ness. C. H. Westrope. Frank A. Ward. C. A. Reynolds. F. B. Hanson. A. E. Woodruff. T. J. Fitzpartick. G. A. C. Clarke. J. L. Hurley. Morris Gardner. Geo. H. Gibson. Glenn H. Sterm. Alex. Maxwell. M. T. Ashley. J. M. Darby. E. Starner. C. G. Perkins.
Pacific Junction. Rock Rapids. Sibley. Sioux Center. Sioux City. Spencer. Thurman. Washta.  Kansas.	Osceola Sioux Woodbury Clay Fremont Cherokee.	1, 212 1, 135 1, 157	14 14 20 14 24 3 16 15	25. 1 28. 6 28. 6 31. 0 29. 9 31. 4	+ 5.7 + 4.0 + 9.0 + 6.9 + 8.4 + 5.9 + 5.3	55 56 59 55 55 58 54 56	2 12 11 11 11 11 11 3 11	- 1 - 2 - 2 - 3 - 1 - 8 - 4	26 21† 25 25 25 25 25 21 26	40 37 32 27 36 37 40	0. 00 0. 03 0. 02 0. 60 0. 08 3. 83 0. 25	+ 2.33 - 0.59 - 0.75 - 0.99 - 0.14 + 2.44 - 0.60	1. 33 0. 00 0. 02 0. 02 0. 48 0. 08 1. 68 0. 20	2.6 0 T. 0 0.5 0	6 0 2 1 6 1 5 2	17 20 19 16 13 20	1 6 5 3	10 6 11 9 13 8	e. n. sw. s. s. sw. ne. s.	H. H. McCartney. W. C. Wyckoff. H. G. Doolittle. J. de Ruyter. U. S. Weather Bureau. S. Gillespie. C. R. Paul. H. L. Felter.
Abilene Agricultural College Alton Atchison Beloit Blakeman Blue Rapids Cawker City Centralia Chapman	Dickinson. Riley Osborne. Atchison Mitchell. Rawlins. Marshall Mitchell. Nem-ha. Dickinson.	1, 157 1, 100 1, 651 973 1, 383 2, 894 1, 105 1, 473 1, 256 1, 113	18 55 11 22 18 16 7 5 4	34. 4 36. 4 34. 8 27. 0 35. 0 34. 4 34. 5	+ 4.8 + 3.7 + 4.8 - 1.2	57 57 53 61 55 51 54 55 57	15 13† 3† 1 14 1 1 3† 13	7 7 8 6 2 6 5 7	26 26 26 26 23† 26 26 26 28	30 37 31 30 32 28 26 27 32	3.84 2.55 3.54 3.36 3.82 3.64 4.38 4.53 3.27	+ 2.27 + 2.99 + 1.94 + 2.18 + 2.86 + 3.32	1. 68 1. 20 0. 70 1. 60 1. 21 1. 20 1. 93 1. 90 1. 64	6.9 2.5 1.0 1.4 5.0 T. 1.5 2.0 3.0	8 10 8 6 10 7 8 10 11 10	10 13 12 14 19 11 12 12 9	1 6 5 5 4 3 7 3 11	20 12 14 12 8 17 12 16 11	W. W. %. 86. NW. SW. 86. n.	C. L. Brown. Prof. J. O. Hamilton. H. A. Storer. Prof. E. M. Stahl. F. A. Slack. C. L. Henderson. M. Norton. J. W. Higgins. N. S. Hazen. W. S. Robb.
Clay Center Colby Concordia Densmore Dresden Ellisworth Emmett Eskridge Farnsworth Fort Scott Frankfort Garnett	Clay. Thomas. Cloud. Norton. Decatur. Elisworth. Pottawatomie. Wabaunsee. Lane. Bourbon. Marshall Anderson.	1, 203 3, 138 1, 398 2, 200 2, 731 1, 537 1, 024 1, 412 2, 850 857 1, 146 950	12 22 29 4 19 9 1 7 12 38 19 7	34. 3 26. 6 35. 0 32. 4 30. 2 34. 9 35. 4 32. 4 39. 4 36. 0	+ 3.7 - 3.4 + 5.3 - 0.6  + 1.2 + 5.2 + 6.1	55 49 54 59 50 58 56 64 58 59	3† 1 3 16 12 3† 1 11 4 7	7 5 8 5 7 4  9 6 17 8 10	26 21 26 26 23 27 26 25 9 21 26	28 32 24 34 27 32 24 38 34 33 22	3. 33 4. 36 3. 91 5. 18 4. 46 4. 12 3. 82 5. 07 3. 29 3. 84	+ 2.75 + 2.00 + 3.10	1. 50 1. 35 2. 09 1. 42 1. 86 1. 75 1. 67 1. 74 1. 70 1. 70 2. 20	T. 13.0 2.1 0.5 3.0 3.5 0.5 8.8 8 2.5 5.0 T. 5.5	8 8 10 8 7 9 5 13 8 6 5	12 15 9 19 13 11 17 12 10 7	3 5 8 1 6 8 4 4 4 0 0 10 4	16 11 14 11 12 12 18 16 14 19 11	se. nw. s. nw. nw. s. s. n. nw. sw. sw.	O. L. Slade. G. H. Kinkel. U. S. Weather Bureau. Miss Irene Vaughn. Jacob Bock. Geo. Seitz. Frank Zima. Geo. D. West. C. M. Jennison. E. A. Shaver. W. W. Watson. D. D. Judy.
Goodland Grainfield Hanover Harrison Hays Hill City Holton Horton	Sherman Gove. Washington Jewell Ellis Graham Jackson Brown	3, 687 2, 813 1, 225 1, 804 2, 000 2, 134 1, 043 1, 188	6 16 12 45 5 2 24	31.8 35.1 33.4 33.0 31.8 35.9	+ 5.2 + 5.5 + 2.0 + 6.1	55 55 52 54 52 59 58	11 12 3† 11 1 1	10 5 6 3 5 5	25 26 26 26 26 26 26 26 26	31 27 26 31 26 32 28	3. 52 3. 54 4. 36 3. 11 4. 80 4. 46	+ 2.77 + 3.88 + 2.29 + 2.90	1. 44 1. 61 1. 34 1. 62 1. 19 1. 31 2. 50 1. 77	0.5 1.2 0.8 1.2 3.0	7 8 9 9 9 8 10	20 14 16 11 11 11 9	1 4 5 11 7 2 4	10 13 10 9 13 18 18	nw. s. ne. nw. n. sw.	C. C. Calvert. C. A. Bolster. A. Jaedicke, jr. Mahlon Tegley. G. K. Helder. C. A. G. Inlow. Miss Thamer Richey. Mrs. S. C. Belden.

TABLE 1 .- Climatological data for December, 1913. District No. 6-Continued.

			rears	Temp	erature,	in d	egree	s Fah	renh	eit.	Preci	pitation,	in inc	hes.	days,	1	Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	snowfall, telted.	2	Number of clear days.	Number of part- ly cloudy days.	Number of	pq	Observers.
Kansas—Continued.																				
oxieawrence	Sheridan Douglas	2,700 997	14 45	36.8	+0.8 + 5.4	58 60	11†	10	21† 26	24	3. 27	+3.74 + 1.87	1.08	0.5	8 7	11 6	9	11	n. w.	I. L. Vinson. F. E. Kester.
eavenworth	Leavenworth	913 1,812	69	37.3	+ 6.1 + 3.4	60 52	1 4	10	26 26†	28 25		+2.38 + 4.28	1.80 1.52	2.0	9 7	13 15	2 4	16 12	e. n.	Dr. A. F. Yohe. E. V. Bower.
ebanonenora	Norton	2,300		94.0	3. 0. 4						4.94		1.78	5.5	12					J. S. Goodrich.
eoti	Wichita	3,300 1,374	10	28.6		47	4	7	21 26	25 32			0.90 2.47	5.5	6 8	18	6	10	nw.	L. E. Gorsuch. R. W. Greene.
incolnindsborg	Lincoln McPherson	1,333	7	34.8		55	3†	4		0	0 00		1. 13	3.0	9	10	0	21	8.	A. J. Fredrickson.
icCracken	Rush	2, 139 1, 014	1	34.2		57	4	6	26	32	2 00	1 9 15	2. 10 1. 22	2.2	9 12	10	10	11	sw.	E. D. Floyd. C. P. Blachly.
fanhattan	Riley Ottawa	1,014	21 23	36. 2	+ 4.9 + 3.7	59 55	13	6 7 7	26 26	27	3.64	+ 2.15 + 2.98	2.07	1.5	10	14	3	14	8.	J. L. Steele.
Ioran	Allen	1,098	17	38.4	+ 4.4	58	1†	9	26	29	3.54	+ 1.83	1.92	4.0	5	9	3	19	sw.	C. J. Norton.
atoma	Osborne	1,834 2,284	15	30.7	+ 0.7	54	11	3	26	30	3.85 4.85	+ 4.35	1.00	2.0 8.0	8	14	3 9	14	ne. nw.	Guy Gamber. Sim Sleffel.
fortonberlin	Decatur	2,539	26	28.5		52h	3	-1	23 26	34	5.49	+4.86	1.52	11.0	8	16	8	7	nw.	I. K. Huber.
keto	Marshall	1, 194	5	34.6		55	31	5	26 21†	30	3.76	1 1 06	1.86	0.8	8 9	9	6 4	16 18		J. A. Church. Dr. S. B. S. Wilson.
olathooskaloosa	Johnson	1,032 991	18	35.7	+ 3.8	59	1	10	211	26	4. 07	+ 1,96	1.31	2.5	8			10		Ralph Snyder.
)ttawa	Franklin	926	19	36.6	+ 4.1	57	3†	8 2	26	29	2.48	+ 1.16	1.35	5.5	8 9	10	6	17	nw.	W. J. Sheldon. N. E. Bailey.
Phillipsburg	Phillips	1,939 2,156	22	32.8	+ 2.3	52	14	2	26	26	3. 29	+ 4.62	1. 15	5.0	9	15		10	IIW.	Chas. Lambert.
leasanton	Linn	862	11	38.0	+ 4.1	60	1	11	21	26		+ 1.75	1.70	4.5	8	9	2	20	nw.	B. F. Blaker.
luenemo	Osage Republic	941	1 10	37. 2		69 58	10	5	26 21†	30	4.11		1.54	3.0	11 10	7	9	15		R. L. Graham. J. W. Ambrose.
Republic	Russell	1,834	14		+ 2.7	54	3†	5	26†	30	2.78	+ 2.22	1.02	3.0	8	14	2	15	SW.	Robert Brebner.
Russell Springs	Logan		3 5	30.8		54	10	9	21	34	3.81		2.25 0.96	0.1	7 8	141				D. J. Hutto. J. E. Uplinger.
t. Francisalina	Cheyenne	3, 288 1, 227	29	24.6	+ 1.9	50	1 12	0 3	28	32 27	3, 12	+ 3.12	1.80	4.0						Prof. A. W. Jones.
cott	Scott	2,971	7	33.1		54	11	12	28 25†		2.98		1.03	1.5	8	17	3	11	n.	J. B. Loughran.
mith Center	Smith Shawnee	1,800	27	34. 2	+ 4.9	54	3	8 9	211	27 29	4, 69	+ 2.68	1. 25	1.5	12	16				W. H. Nelson. U. S. Weather Bureau
ribune	Greeley	3, 612	14	26. 2	7 3.0	46	4	5	25		2.08	+ 1.77	0.66	3.8	7	17	5	9	nw.	Charles E. Cassel.
alley Falls	Jefferson	913	14	34.7	+ 3.1	58	1	3	26	29	4.56		2.01	2.9		12	4	15		Miss Nettie Maxwell. A. Schick.
Vinland Vakeeney	Douglas	880 2,456	30	33.5	+ 2.2	55	111	7	26	29	3.48 5.22	+ 4.65	1.60 2.68	5.0 3.0		15	1	15	n.	A. S. Peacock.
Wallace	Wallace	3,303	43	27.4	+ 2.2	46	5	6 7		26	2, 29	+1.85	0.72	4.0	7	16		8		J. L. Page.
Wamego	Pottawatomie	1,002	20	36. 4	*****	60	13	7	26	29	2.79	+ 1.91	1.80	2.7	11	10	3	18	SW.	M. L. Stone.
Missouri.																				
moret		850 853	5 24		+ 1.5	60	1	8 20			2.96	+ 1.36	1.60	3.5	6					Darby Fruit Farm. Mark Brown.
rlington	Phelps	695	11								1.38	- 0.13	0.55	10.0						G. V. Randolph.
rthur		767	28	37.2	+ 6.8	62		19	21	26	2.62	+ 0.85	1.37	3.5	7	8	4	19	SW.	F. G. Ashbaugh.
valon Bethany		881	20	31.2	+ 0.0	0.2	1	13	21	20	2.02		1.01	0.0						. W. H. Skinner.
Bolivar	Polk	1,070		40, 2	+ 4.3	61	4	20	9	32	2.69	+ 0.22	1.37	6.2		6		18		T. H. B. Dunnegan. C. Randecker.
Boonville Brunswick				37.0	+ 5.0	59	11	15	21	29	2.11 2.36	+ 0.64	1.08	6.5		8				Louis Benecke.
linton	Henry	800	27	39.2		. 61	1	20	21	30	2.54	+ 0.68	1.60	4.0	6			19		A. E. Derwent, M. D.
Columbia		784 982	25 29	37.8	+ 4.9 + 5.0	61 55	2	20		28 27	1.74	- 0.27 + 0.92	0.72	8.0						U. S. Weather Bureau Fr. Adhelm Hess.
rocker	Pulaski	1,300		42.8		. 62	54	20	8	29	2.21		1.30	8.0	3	10	2	18		. Roy W. Reed.
Ouncan	Webster		. 1	38. 0 38. 6		. 58	3	17		31 28	2.26 2.43		1.10	12.2			5	19		C. A. Mingus Charles A. Kellogg.
Sidon					+ 3.3	59	3	15		27	1.95	+ 0.17	0,80	7.0	5	11	1	19		. Prof. T. B. Smith.
Fulton	Callaway	818	21	36, 4	+ 3.5	61	2	18		37	1.49	- 0.76	0.72	5.5	6	9	3	19		
Hasgow	Howard Worth	618			+ 6.0	56	11	3	21	1 26	2, 22 2, 87	+ 0.33 + 1.63	1.02	7.0		12				W. H. Campbell,
Tarrison ville	Cass	912	41	36.6		59	1	15			3.47	+ 1.59	1.66	4.0	10	7	1	23	SW.	A. J. Sharp.
Hermann					1 3 6	66	4	15	9	42	1. 12	- 0.79 - 0.70						23 13		C. T. Maushund. J. W. Logue.
Houstonefferson City	Cole	628	31	36.0	+ 2.8	68	3	16	9	33	2.40	+ 0.46	0,80	10.0	5	12	0	19	n.	Miss Emma Swift.
Kansas City	Jackson	963	26		+ 6.3	57	1	15			3.35			4.0		8	2	21		U. S. Weather Bureau J. T. Dewey, M. D.
Keytesville Kidder		1,017	23	36.5	+ 7.1	55	1	12	26	24	1.88	+ 0.77	0.80			11	0	20	sw.	J. F. Sharp.
amont	Pettis	863	26	38.3		58	1	20	8	† 28	3.00	+ 1.16	1.45	5.5	7	4	10	17	S.	J. Ed. Hall. M. W. Serl.
ebanonexington				38.0 37.5	+ 2.6 + 6.2 + 6.2	57 62	2	18 13			1.95	- 0.81 + 1.56	0.90			11				J. W. Keithley.
iberty	Clay	. 864	26	37.8	+ 6.2	63	1	12	21	27	3.51	+2.09	1.65	1.1	8	7	n 6	a 17	a SW.	W. C. Wilmott.
ockwood	Dade	1,088	18			. 62	3	21	26	† 24	2.54	+ 0.64 + 0.42	1.30					19		C. S. Crow. Prof. W. H. Black.
farshallfaryville				33.8	+ 6.3 + 7.4 + 2.3	68	2	14			2.26	+ 1.07	0.47	3.0	9	14	0	13	nw.	J. R. Brink.
fount Vernon	Lawrence	1,480	36	39.2	+ 2.3	66	1	20			2.33	- 0.35	1.00	7.0	5	8	0 1	e 17	7 e 90.	J. R. White & Son.
Nevada Oregon							1	7	21	† 25	3.46	+ 1.52 + 1.09								C. Jewell. Tom Curry.
Rolla	Phelps	1,139		38. 9	+ 6.8	65	1	17	25	31	1.59		0,71	7.0	4	8	7	10	3 W.	Prof. Elmo G. Harris
St. Catherine	Linn		. 1	37.0		. 68	3	11	21	25	1.44		0.88							L. D. Baker. L. C. Saeger.
St. Charles					+ 5.0		3	20	8 26		1.06		0.31							U. S. Weather Burea
St. Louis (1)	St. Louis City	. 567	43	41.2	+ 5.7	63	1	22	8	28	1.62	- 0.61	0.94	11.2	1 7	8	3	2	nw.	Do.
St. Louis (2)	do	578		39.8	+ 8.7	. 60		22			2.29	+ 0.75	1.43					· 1		St. Louis University. Lewis Spriggs.
Sublett Tarkio			. 2	22 4	R	72	2	- 3	27	39	3. 13		. 1.63	4.0	0	10	)E (	R !	Br n.	Prof. M. H. Rees.
	Grundy	812	19	36. 4	+ 6.7	60	1	11	21	27	2.39	+ 0.86	1.32	2.6	7	10	) 3	1	S SW.	W. H. Estes. Geo. W. Davis.
Trenton		1,072	21	33.6	+ 6.0	60		10		36 25	3.63									A. F. Smithson.
Unionville	Putnam	892		38.0	1 de 4 3															
Unionville Warrensburg Warrenton	Johnson Warren	. 883 865	36	38.0 37.6	+ 4.3	59 61	2	19	8	† 25		- 0.97	0,60	6.2	7		5 8	2	l nw.	Prof. J. H. Frick.
Frenton	WarrenBenton.	. 883 865 700	36 24 10	20, 4	+ 6.7 + 6.0 + 4.3 + 5.4 + 4.5	61 68	2	19	8	† 25	1. 29 3. 47 2. 43	-0.97 $+1.57$	0,60	6.2	7		1 5	2	nw.	

\*, b, e, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

‡ All temperature normals for Montana used in this table have been reduced to the 33-year period.

T. Precipitation is less than 0.01 inch rain or melted snow.

# MONTHLY WEATHER REVIEW.

Table 2.—Daily precipitation for December, 1913. District No. 6, Missouri Valley.

au-tt	Watershed.												,			Jaj		onth			-											_	1
Stations.	watersned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Wyoming.				- 7-							1																						
apahoe	Bighorn	*			. 50															. 20	. 15												E
sin g Creek Station	North Platte							1			1				1																		-
yd	Charranna	T.	0.7	0.4				1		100000										T.				T.	T.		T.	****		****	****		
rns	South Platte North Platte	. 50	.20	. 40	. 50	.40									****	****		****		. 05													
per																			. 00	. 40						. 01	. 10	. 02		.01	. 09		
eyenne	South Platte	40	27	10	70	29					1				Seene		Sec. of			. 02	. 13												
rk	North Platte Yellowstone																			T.				T.	.10							T.	1
V																				Т.				T.					****				
ndall Creek	Yellowstone	1 00	30																	.10				. 10	. 10								1
me Lakeuglas	Yellowstone Tongue North Platte	. 12	.38	. 06	. 03	. 55														. 03	. 02				. 01							.04	
bois	Dignorn	. 04		. 04									****				****	****		. 10			****		. 10								
ons Ranch	Tongue Powder North Platte	.20	.10																	T.	T.				T.						(80)	25	5
Mountain	North Platte	*	. 18		*	. 55											T			. 23	Tr.			.07			.07	T.			(-)	. 03	
campment	Powder	. 02	63	T	. 13 T	.07		****									1.		T.		. 07				T.								-
t Laramie	Powder North Platte	*	. 70	.35	*	. 45														T.					****								1
mark	Bighorn																							. 09									
mania																																	-
rse Creek	Bignorn		****																	T				T.									
nters Station	Powder Bighorn	. 08	. 11			****	****			****										****													-
h	Niobrara															****																	1
nnear	Bighorn					****										****																	
tley	Righorn								1										0000	0000	0000						1						1
owles	Cheyenne		.22	90	98		10		- 0 0 0											. 16					. 00		. 00						
grange	Cheyenne North Platte Bighorn North Plattedo Yellowstone	. 41	. 18	.20	. 20	. 00	. 10												. 20	.26	T.										0000		
ramie	North Platte	. 40	T.		. 17	1.11														. 10	. 08						. 02	. 00	1				
abama Ranch	Yellowstone	05																															-
ell	Bighorn Niobrara do Cheyenne North Platte Cheyenne North Platte South Platte Cheyenne	.00																															
k	Niobrara	. 55	.09			20														.05			****		.10								
nville	Chevenne	. 30	.40	.10		. 30				****											. 01					.00					T		-
ore	North Platte	.11	. 72	.10	.37	. 38														. 02				T.	.05		.01	. 0.			1.		
weastle	Cheyenne	. 05	T.	T		23													T.	.07	T.												
nnnder	South Platte	. 13	1.02	.20		1.48		.40												T.		. 02			T.			T.					1
ne Ridge			.25																	. 05					.12								
wellwlins	Bighorn North Platte	. 12	. 18	****	.06	. 14												T.	T.	.25	.03			T.	. 04		T.				T.	T.	-
ck River	do	22	13 05	6.5	1	1			1	1	1			1						.01				.07									
ekypoint	Powder North Platte				1	335	1					1.		1							. 45						. 0				. 03	3	
en-Mile Creek	do			1				1			3		1			1	1							.01								1	
ridan																				.02				T.	. 09								
shone Dam th Pass City	Bighorn North Platte	. 06	.07	T.	T.	T.													. 04	.02				T.	T.	.0	1					.00	2
dance	Cheyenne				1	1		1.000	1	Danie .											****			.06	. 10								
ermopolis	Bighorn Tongue	T.	T.								1								T.			1	1	T.									٠
ton	Chononno		1 15	1	1	4	1	i	1	1	1	1	1	1	-lanes		1							.04	. 01		1		1				
rona	Tongue North Platte	*	1.75	20	*	2.10								1						T.							T.						
nts Ranch	do	- Ab	1	1		1 .40	li .	1.000	1	1			· · · · ·							. 15				. 05	. 11							. 20	U
odrock	Tongue Bighorn																			T.	****			.05	. 02	2							
ncote	North Platte	. 50	. 90	.30	. 15	.21														T.	T.										T	2	À
llowstone Park	Vollowestone		1	1	1	1			1		1	1	1													1		1	1				
ountain	Madison Gallatin																								1								
rand Canyon																																	
ake Yellowstone	Madison																											7	2			1	
Norris Riverside	do		1		1	1			1		. 1	- 5											. 10		5 . 0	5						2	30
oda Butte	Yellowstone Bighorn	.30																		T.	****			I.	.2							0	05
ylvan Pass	Vellowstone					Lever																										3	
Ower Falls	do		1		1	1.	1	1												. 05					5		1 .1	0		i	0		ő
Jp'r Geyser Basin Montana.	Madison						****																-						1				
Montana.	Yellowstone																															T	
81	Missouri																							.04	4		T	1				0	)1
ricultural College.	Gallatin Missouri																		T.	T.				.24	4						T.		10
d Butte	do			1	1										. I.					.08			. 04		9 T.						Т.		-
timber	Yellowstone																1			.04				.0	4 .0	8							
lings	Missouri	1			1	1	1.50	1		As Same									00	3			08		3		o T				T	T.i	18
wen	Jefferson			1	1															T.			08			0	3						* *
x Elderdger	Milk Yellowstone			k	1	1:																			0	6							
owning	Marias																			.01				T	.0	7							
sby	Yellowstone								1				-							.08	3			T.									
steed meron	Madicon	i che	1	1	: 430	41	1	1	1				-1							. 05			0	1.1	8	T	1	11			-1		
nyon Ferry	Minnousei						1		1								-1							.1 - 30	0								
scadeester	Marias																									1	6				· · · ·		
inook	Mille	1			1		1	1		-1																	T						
depark				1			1	.1												00	1000				0000	0 000							m

Table 2.—Daily precipitation for December, 1913. District No. 6—Continued.

Stations.	Watershed.			1			-		- 1		-		1	- 1			of mo	1	-	1	1		-	-	-			-			1 1	-
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
fontana-Contd.																							İ									
pper	Missouri																			. 01			T.	T.	. 08							T.
ow Agency	Bighorn																			T.					T.							
Ibertson	Mis:ouri																									T.						
	Marias																		T	. 10				.09	T							
nton	Missouri Jefferson	T																	1.			.03			.07							. 07
nkirk	Marias																									T.						T.
ralaka	Lt. Missouri.																			T.					- 1					****		
																				01				T.	.01							T.
	Missouri																			16				1.								.98
	Yellowstone Missouri																		0000	. 03				. 05								
	Yellowstone																			T.				. 03								
rt Shaw	Missouri																		. 02					.06								
	Bighorn																			.01	24		08		. 12				****			
	Missouri																		.14		. 29				. 00							
yseracier Park	Marias			****				T	****			****			T.				.01													. 05
idbutte																																
	Powder																		m													
	Missouri																		T.													
rlowton	do Milk										****									695						. 02						T.
bgen Dam	Madison																		T.				. 30		. 05	. 05						.20
	Madison Missouri	T.																	T.				. 09	. 02							. T.	T.
ghwood	do	T.																		. 10				. 13	08							
	Yellowstone		XXXX															****	****	. 07				. 08	. 08	T.	T.	****			1	T.
wistown II	Milk Missouri																			.31	.01				. 04							
ma	Jefferson				****												.02			. 02				. 06			T.				06	
thair	Marias																								T.	*	. 15					
tle	Missouri																					0000					T.					
dta	Milk																										. 02					
	Missourl		****								****							****		****				. 04			.08	Acres.	****			
elstone	do Yellowstone				****			****		****	****			****			****	***		T				.01								
les City	do		****			****		****																T.	.01							.01
orris	Madison		1	1	1															. 16				. 03								
negrove	Missouri																			. 10	. 10		. 10									****
	Yellowstone					****		****		***	****			****			****		****		T.	T.	****	T.								****
	Missouri Yellowstone																			05		1.										
move	Inflorent	1	1		1			1		1							1			T.												T.
regate	Missouri				1														. 08													
Marys Lake	St. Marys		. 02																								10000					****
	Yellowstone	***																						****	T.	m						T
	Marias																															
dney	Yellowstone Missouri	T.	I.																						.02		.02					
acev	Tongue				3			1												T.	T.			****								
nlit Farm	Milk																										.24					
n River Canvon .	Missouri																							. 05								. 13
ree Forks	Madison Missouri																			10				.07							-	
icaientine	Missourido											1								· A 27	. 02				T.							
lier	Marias					1																										
all Rock Mount'n	Missouri																			. 18				T.	T.							07
hite Sul. Springs	do																			. 03					.04	1			1			T
	do																		T.	T.	Т.		T	04	T.				1			. 04
olf Creek	do																			. 09				.08			1					
E CHARLES		10000									1					1		1			1			1		1						
North Dakota.				1							1				1	1	1			1		1							1			
			-	1	1					1	1			1	1							m		T.								
plin	Knife		T.																			Т.		1.								
shley	Missouri Lt. Missouri.	.0		1		0000				1						1		0000		1												
elfield	Heart																															
erthold Agency	Missouri				1	1		1		1	1	1				1		1	Lever	1		T.			T.	T.	T.					
ioma cole	da	1 94	61 11.4	R.C.	1	1	1	1	1	1	1	I	1	1	1		1	1	1	1	1	1 .10			T.	1	TD					
nford	do																						Tr.		I.							
	Heartdo																				000	T										
dealor	Taman	01	K I	9	1	1	1		1	1			1	1	1				1	4		1						-				
nergy	Missouri																					. T.			T.							
ullerton	James	. 10	0																				0000		.00							
arrison	Missouri								Anna	Janes														HARR	BERRY		* ***	* * * * *				* * * *
aleyettinger	de de						****	****				****	***		1			***		****		****										
oward (near)	Missouri							T														T.					. T.					
mestown	Inmee	1 4		1		4	1																10000	· lone	. 4 .			. T.				
POTT	Knife			1			1					1											10000		Janes							
moine	Missouri	. T.	T.																			· L.			L							
eHenry (near)	James Lt. Missouri											****								T			0000		T.	000						
armarth (near)	James								0000			****						0000		1.		T			T.		T					
	Lt. Missouri.					10000																										
	James	. 30	0																									. T.				
edora	Cannon Ball		1.10	n!							1						-				0	61		. T.		0	5					
edoraelvilleott	Missouri	4	5	110	n		1		1			1																				
edoraelvilleottapoleon	Clauman Dall				1																											
edoraelvilleapoleon   ew England	Cannon Ball		2																									0				
edoraott	James		0		1	1	1		1			1								1	1	181		1		-1						
edoraelvilleapoleon   ew Englandew Rockfordew Salem	James Heart	1 . 10	0				1					1										Т.						0 000				
edora. elville. ott	James Heart Cannon Ball	. 10	0	5						1							-															
edora	Heart	. 10	1	5																												
edora. elville. obt	Heart Cannon Ball Lt. Missouri	. 10	1	5	· · · ·																T											0

\*Dates on which precipitation fell not entered.

## TABLE 2 .- Daily precipitation for December, 1913. District No. 6-Continued.

Stations.	Watershed.	1	1	1		1				1		L		1						1	1	1		1	1	1	-					
	1, 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
South Dakota.																																
erdeen	James	T.	. 03	T.	T.																							T.				
ademy	Missouri	. 03	.12		T.																				.01							
exandriadmore	James Cheyenne	.06	.18	. 29	• • • •	4.00	• • • •						1							T.	••••	****	••••						****	****	****	
mour	Missouri												1	1																		
ellefourche	Cheyenne	. 43	. 22										1				1			T.				• • • •	.02				****		****	
itton	James																1															
ookingsyant	Big Sioux	.09							10000				10000							• • • •				••••		••••		Т.	••••			••••
mp Crook	Lt. Missouri.	. 03							1000											T.					63.96					0000		
ntonstlewood	Big Sioux	.08	. 15		.01	T.													••••	T.					T.			T				
nterville	Missouri	.04		.02																T.				••••								
amberlain	James	.12	.04						Janes.																T			T				
arkttonwood	Missouri	. 11																		T.		****		****	T.				****			
ster	Cheyenne																															
aviston	Owl Cheyenne	.10	.10																	.07				• • • •	T.	0000		••••			****	****
erfield	do	. 01									1																					
Smet	James Chevenne	. 20	. 40				1	inc.	deser	1000										T.					T	****	****			****	****	
imont	do	. 04	. 23	. 06																							.04		****			
k Mountain	Missouri Chevenne	. 34	. 29	T.																				10	. 04							
lingson	Grand		. 19			-4															. 05			. 10	T.	T.						
ureka	Missouri	. 43	. 09															1	1	700					T.		T.	T.				
airfax	Chevenne	. 13																1		T.		****			T	T.	T.	****			****	****
ulkton	James	. 20	. 15											1						****					T.							
orestburg	Cheyenne	. 05	. 03	. 08							1000										· · · ·					T.						
oldfield	do		. 19									-1								. 02	1.		3			1.						
reenmont	do	. 09	. 10																													
reenwood	Missouri Cheyenne	.16	. 41	. 11	. 01	****					• • • •									. 10			****									
ardy Ranger Sta	do																															
arveys Ranch	do	T.	. 20																	T.					T.			0000				
ighmore	Missouri	. 15	.08	. 04	. 01																							0000				
opewell	Cheyenne	.10	. 15																	T.					.02							
ot Springs	Missouri	T.	.35		T.	. 05														T.	.02				T.					1		
owell	James	. 03	.04	.01	T.																				T.							
swich	do	.05											elece.	20.00		1000	deres.			T.					T. T.			T				T.
adoka	White	.11	. 25																						T.	T.						
ennebecimball	Missouri	. 60																							T.							
Delle	James	. 28			****																	****			T.							T.
ad	Cheyenne	.02																		.10					. 10							
arion	Grand Missouri	. 20		T.	03														****	.10		****		****								
arston	do	. 28	. 23	.05																					T.		T.					
eadowellette	James	.04	.23																	T.					T.			T				
enno	do	. 53	. 10		T.														T.													
ilbank  itchell	Minnesota James	T.		T.	T.															m.						T.			. T.			
obridge	Missouri		****							01000		-								1.												
urdo	White	.50	.50											-1											T.							
elrichs	Cheyenne James	. 15		. 40		1. 10 T.					-1									T.	T.			****	Т.							
nida	Missouri	, 25	. 25	T.																												
rmanttumwa	Cheyenne Missouri	17	. 22		****															T.					02							
arkston	James	. 17	.14										4	1					. T.													
earl Creek	do	.01																														
ine Ridge	Missouri White	. 19																							T.							
lankinton	James	. 10	. 03	.08								-1									T.						. T.					
ollock   apid City	Missouri Cheyenne	. 15	17	.25																					01							
edfield	James			.02																												
ochford	Chevenne		.20	.07																	T.				- m							
osebudoslyn	White Big Sioux	.30	T.	. 25	T.	.08		****													3 T.				00	2		T				-1
oux Falls	do	.09	.02	T.	T.																. 03	3				. T.						
rumearfish	Owl Cheyenne		0.40					0 000		0 000	0 000			0 000		0 000		0000		T.				***	. 03	3						-
ephan	Missouri	. 17	.09	.09	T.															T.	T.				. T.		. T.					
ama	Cheyenne	. 25																														
mber Lake yndall	Grand Missouri	. 03	. 05	.14	T.															. 10	0											
ale	Cheyenne		. 26	.01																T.	T.											
ermilion	Missouri Cheyenne	. 23	.06		.02	2															3				00							
atertown	Big Sioux		.12			01	1	T		0 000										.00	3					. T.						. T
entworth	do																															
hite Lake	Missburi White	69	09	04	T															T					T.							
700d	do	. 49	.31	. 11	T.															. T.	.00	2			. T.	T.						
ankton	Missouri	. 01	. 12	.09			T.		0 004											. 0	5				. T.							
				1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	5	2		1		-	1	1	1

Table 2.—Daily precipitation for December, 1913. District No. 6—Continued.

	Water a															July	of m																
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	m. 4-9
Colorado.																				14							. 05						5
riba	Republican. South Platte	.12	43	.56			. 55											****		. 15				T.	. 01		.07	.14					3
nnet (near)	do	. 10	. 160		1.00		. 40																				****	.14					4
ulder	Republican .	.30	.31				1.05													. 20													30
rlingtonssells	South Platte																			T.	06			.06 T			. 25						5
stle Rock	do	. 43	. 27	.36			.62													. 10					0000		.09	. 15					4
eesmaneyenne Wells	Smoky Hill.																			. 15				••••	T.		T.	T.					2 5
nver		.54	. 18	.02	2 2. 12	1.32							****																				100
gewatertes Park Fish	do	.25	. 21	. 18	. 72	1. 47	****	****												. 05			****					.10		****	****	****	12
Hatchery.						-														. 22							.02						14
rt Collins rt Lupton (near).	do						.06		4			1								. 13						****	.06						3
rt Morgan	do	****	****	****		0.05	****	****			****									.02				T.	T.			.10			*	.32	
ances	d0	. 30	.26	. 10	1. 30	0.00	****								1												T.	. 05	****		T.	T.	1
ys Ranch orgetown	do	.39	.06	.30	3.00	.39			****		****		****			****	****	T.	Т.	.03			T.							****			1
orgetown     eeley over (near)	do	1.30	. 87	. 00	01.20	.00	10								1		1000			. 15													13
rtsel																												. 19					1
wthorne	Republican .	.41	. 25	. 60	0 .23	1.17	.40									.27									****		T.	07		****			1
aho Springs	South Platte	. 20	. 21	·U	0 1.24	4.09	. 61	0000	0000				0000																				
lesburg	do	****	***				****	****	****	****					****					****												****	1
Porte	do	. 65	. 85	.10	0 .87	1. 12									****		****	****	****	*	.32				T.		*	. 03					1
Roy (near)	Republican .	. 26	. 20	× 61	0 1.00	. 04									1	-			0.5	.06							. 07	****		****			
ngmont     ngs Peak (near)	do	.75	.27	.2	0 1.67	2.40									****		****																1.
ongs Peak (near) erinooraine								****				1.000	10000			1				OF										1			1
oraine atie Canon	do	1.00	.00		1		1	2	1	4		0			1	1				na							1 1						1
. Cloud	do	1.00			. 1. 1	1.3														PER											Jeens		
dgwicklver Lake	do				0 .0																												1
oicer (near)	North Platte		****									1			1	1				T.	0.3					1	. 430	1					
erling	do																			·													-
ray	Republican.	. 13	. 25	6 .6	21.7	5 .9	8													T.													
uma	do	. 02	.23	5 . 2	8 .0	11.0	0 .20											-												-	-		1
Nebraska.			+	1	1	1	1	1		1	1		1		1																		1
insworth	Niobrara	.27	.40	0 .5	8 .2	1 .1	4													.06				T.		.16							
lbion	Loun		.21	1 .6	2	. 1.7	8 .82	2								***			T.	.07 T.													-
lliance		1.15	.30	1.5	0 T.	4 .9	1 -80													45	ne				07								
lmareadia		. 42	. 90	0. (	4 .4	9 2. 2	1 .80 2 T. 8 1.00												03	- 75				****	T	T.	***	****					
rden []	do	.15	.80	0 .0	4 T.	. 8	81.0071.19												.01	. 04	.39			T.	T.							T.	1
shlandshton																					.39			***	****	T.			****				
tkinson	Elkhorn	Т.	. 11	1 .2	2 .0	7 T.	4 1.4									***		****		T.	.98				. 20			T.	***			T.	
uburn	Blue																				05					20						****	1
eatrice	do	. 20	6 .6	3 . 4	. 4	91.1	9 1. 30	3	0000					1000	-						- 86												-
eaver Cityellevue	Republican . Missouri	. 02	.00	7 .2	6. 6	11.0	5 1.19	0.0	5												. 49				Т.	T.							
enkelman	Republican.																	****		.10	27												
ertrand	Missouri	01	5	7 .8	2 .1	21.0	71.1	5 .0	3											. 01	. 26		1		11	1 .1.							
lairlake.																		- **		1.15	02			****	T.			1					
loomfield	Missouri	. 02	2 .20	0 .2	23.0	3 1 1	3 2 3	9 .4	1												. 90					. 0	1						-
radshaw []	Loup	00	1 . 2	6 .3	5 .1	0 .7	5 .0	7												rps	1	N.			113	1							
ridgeport	North Platte						0													.40	3	1	1										
roken Bow	Blue																				1			1		1							
urge	Nicbrara	. T.			1.5	0														55	2												
urwell			2 .0	5 .1	0 .0	5											* ***			T.	1 00				. T.	0	5		***			1	
airo	. Platte	. T.	.2	3 1.1	11 T	. 2.0	8. 0	7							-					. 30	1	1		4		1			1				
allawayambridge	. Loup Republican		.30	01.1	5 .6	0 1.3	5 .9	0												.40	. 3!	5				T.							
olumbus	. Loup									- XXX							* * * *			4	40	0	1	1	00	3	1						
rete	. Blue		. 2	3 .2	24 .1	81.1	1 1.7	4												.1	2 .20	0											
ulbertson	37 43 933 44			11.0	00												000			6	90	2		1		1							
nrtis	. Republican		8	7 1.3	53 . 4	6 1.3	4 1.1	5		-			1																			- 'm'	
alton []avid City		0	5 .0	2 .2	23 . (	1 1.2	4 1.0	9												1	1 60	0	T		0	R		1					
n Bois	. Missouri	. 0	1 .	1 . 1	54 . 1	5 2.0	21.1	6 .2	U												1 .0.		1	1000	-	1							
umas lm Creek []	Platta	7	51.0	0 .	13 1. 2	7 1.3	57 .5 5 .0	5												8	5												
sie []	Republican											0 000			000					0		0000	-	1	4								
ricson (near)	Loup Elkhorn	1.2	0 .3	5	30 .0	12 1.4	3 .5	5												0	8				. T.	***							*
wing    xeter airbury	Blue										0 000	0 000	0000					-	-	10	2 0	E .	1	T	0	5							
airbury [[	do do Missouri	2	2 .2	5 T	24	14 1.0	14 . 5	0 1	8												7	2				1	0						-
airmont   alls City	Missouri	T	T		50 T	Fift Av 1	PRP - 47	47 . 3	000				-		-	-		1		FET	0	61	T	1 444	1 1	ni 'ii		-1 1				. 1.	
ort Robinson   .	. White								0000			0 000							-		-	1			0	ft.		1	1				
ranklin !	. Republican	3																			8 .3	4											
remont	Loup		3	3	50 . 3	10 2. 1	52						* * * *	-							4 4	0	-	1000	0	1							
eneva	. Blue	0	8 .2	3 .:	37 . (	07 1.6	36 1.1	4												0	0 .7	0						0	5				
enoa	. Loup	0	4 .1	0 .	42 .0	13 1.4	21.0	10																							T	T	
losper Jothenburg Frand Island	Niobrara Republican		3	0 1.	43 . 6	35 .5	14 .7	9												. 4	0	i											
1 - 45 5	Platte	.1 .0	2 . 2	0 1.	00 . (	18 1.4	5. 19													1	0	8	1	1	PEN	1 0	UNIO I	1					

## TABLE 2.—Daily precipitation for December, 1913. District No. 6—Continued.

Stations.	Watershed.			1	1	1	-	1	1	1	1	1	1		1 1		of mo		1	1		1	-	-	-					-		-
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Nebraska-Contd.																							-									
rant	Republican.		. 24			1.44														.10												
reeleyuide Rock	Republican.	. 25	. 23	.75	. 03															. 01					.20			***	****	****	****	****
aigler	do	.05																									****	****				
alseyartington	Loup Missouri	.05		. 58		1.09 T.														.07 T												
astings	Blue		.37	.48	. 13	1.30	3 1. 53	.14	1											T.	. 82					.10		***				
ayes Centeray Springs	Republican. White	.15		1.06	.22	2. 20	1.65												T		. 60			T	m-	****					T.	
ebron	Blue	.04	. 15	. 22	. 22	1.62	2 1. 17	. 03	3											.15	. 69				T.							
emingford	Niobrara Republican.	.12	05 $1.16$	. 25	1.00	1 3														85												
ershey [	South Platte	T.	.38	. 80	.10	. 78	. 8													.03	. 19											
illsideoldrege	North Platte Republican.	.09	.20		.06	2.29	.07												T.	.15 T.	T.					T.						
ooper	Elkhorn	. 12	. 09	. 18	:11	.35	2 . 51													. 22	T.											
ulf (near)	North Platte Republican.	.33	. 62		T.	1.60	10												T	.10	20					· m	T.			****	****	
earney	Platte		. 39	. 98	.09	1.5	5 .8	5												.39	.30				.10	T.						
imball [[	South Platte	1.00	.20	.10	. 98		0											****	****	.05 T.	****				70		T.				****	
irkwoodowanda	Niobrara North Platte	.12	. 13		:02	1.2	3 . 25	3												1.	. 02								****			
xington	Platte	.06	.30	. 94	. 19	1. 3	1 .52	3												.33	. 27				. 01						·m·	· T
ncoln	South Platte		. 15	. 43	.10	. 00	0													.31	. 20				T.		****					
up City	Loup	. 03		1. 25	.11	1.8	0 1. 17	7												.37	. 43									70	70	
ynch	do Missouri	T.	. 27	12	. 04	1.4	2 . 70													.05										Т.	1.	
cCook	Republican .	. 02	.31	. 90	. 05			7 .0	5											.04	. 19											
cCool Junction    . adison	Blue Elkhorn	T.	. 33	.07	T.	1.2	5 .9	1												.80	.50				1.	****	****		****		****	****
arquette	Blue		. 22	. 68	. 08	1.5	8 . 8	9												. 48	. 26			T.	. 15	T.						
aryason City []	Loup	. 13	. 33	1.06	. 03	1 6	01.5											***	****	.05	. 02					T.	****	****			****	
inatare	North Platte	.50	. 15	.50	.35	.1	1												. 08							.02						
indenitchell	Blue North Platte	. 41	. 11	1.07	-41	1.4	5 .5	9												.93	09			T							.02	.02
ebraska City	Missouri		. 13		. 20	.7	2 1.5	8 .4	0											T.	1, 29				T.							
elson	Blue	. 24	. 62		. 18	2.0	0 1. 2	2												.52	. 64			TP.		- IT						· m
orfolk orth Loup	Elkhorn Loup	T.	. 14		T.	1.8	7 1.0	8									1			. 35	. 15			1.		1.						1.
orth Platte	Platte	. 14	. 60	. 25	.37	1.4	1												. 01	. 26	. 02					T.						
akdale maha	Elkhorn Missouri	T.	. 23	91		8	2 .8	3												. 25	.07	• • • • •	••••		.03	T.					****	.01
Neill	Elkhorn	T.	. 15	. 2	3																. 15											
rd rleans	Republican.			1.08	. 02	2. 1	2 1. 1	2												. 44												
sceola	Blue		.18	. 20	1				1						1						.60				. 05							
shkoshalisade	North Platte Republican.	. 10	- 16	. 6	.36	1.1	1													.02	T.			T.								
awnee City	Missouri	. 20	.00	. 50	11 22	512.0	011.4	0								1	1				.37				. 10							
axtonlymouth []	South Platte	.07	. 15	. 60	3	1.6	3 .0	4												.08						09						
lymouth [[	Loup	. 07	. 16	. 5	3 . 0	2 1. 1	7													. 05						. 02						
avenna	Republican .		. 02	. 3	3 1. 16	8 .0	6 1.6	8 .7	4											. 60					T.	T.		T.				
ed Cloud Libory	Platte	. 03	. 28	.4																. 39	.09				. 02			1.				
. Paul	Loup		1.20	. 7	0.0	4 1. 4	11.0	6												. 21	. 48				T.							
ntee	Missouri Platte	.08	20	.2	0	31.1	0 .7	5			1							****		****	.57		****		T.		****					
ottsbluff	North Platte	. 25	. 70	. 4	1 . 16	3 .4	2													. 02	. 20				.02		T.					
ward	Blue South Platte	. 12	. 20	.3	0 .00	5 1. 3	81.4	2												. 16					. 20							
pringfield	Platte						01.9		8												. 05											
pringview	Niobrara			1																. 45	. 20			T.								
tantontapleton	Elkhorn	. 42	1.00	11 . 11	1 . 8	3 . 0	1.2													. 25				1.								
ratton	Republican		. 22	1 . 8	0 .10	0 1.1	8 .8	0												. 30												
uperior	Missouri	. 10	. 10	1.1	5 .00	3 1.0	5 1.5	8									T.	T.		T.	. 65				. 15							
able Rock	do	. 08	.0€	3 .3	71 . 19	9 1.6	1 1. 2	8 .0	8											. 15	. 47				. 12	. 01	1					
ecumsehekamah.	do		. 12	2 . 1	5	1	0 .9	3													. 18			. 02							I.	****
niversity Farm	Platte	. 27	. 20	.2	7 .0	1 1.2	5 1.5	0												. 12	.41											
pland [ ]	Republican . Niobrara	41	. 17	7 .2	0.0	1 .0	8													T.	. 40				.01	T.						
ahoo	Platte	.18	.38	3	4	5 1. 7	2 .8	2												.55												
Vakefield	Elkhorn	. 03	.03	.0		- 1	0 .7	5												T.						T.						
atertown	Platte	. 55	. 84	1 .0	8 1. 1	11.4	9 .0	6												. 46												
auneta	Republican.	. 25	.70	)	. 1. 6	5 .4	5													. 20												T.
eeping Water	Elkhorn	T.	. 11	1.2	8 T.	T	. 11.2	8												20					T.							
isner	do		. 05	1 . 1	8		. 1.4	5											. 62	2												
ork	Blue	. 03	. 22	.3	0.0	0 1. 7	11.1	4					* ***						****	. 38	.4	****		****	. 10				****	****		****
Iowa.																			1		1				1							-
fton	Grand	. 13		.1	9		21.3	0					1								00					T.		T.				-
llerton	Chariton	. 05	. 04	1 .1	1	5	0 .7	9 .0													. 30	)		.08	T.			P93		2		
lton	Floyd	T.	. 04	T.			0	3																								T.
tlantieudubon	Nishnabotna dodo		.03		5	- 3	5 1.2	3										.0.		Т.	13				200	.00	3	T.	1000			
edford	Missouri	T.	. 03		7	. 4	3 1.0	5		1		1						1			. 60	)			. 04			0	1			
enterville hariton	Charitondo	. 02				5	2 .5	3 .0	3											. 25	1.08			. 02	1. 4.							
larinda]	Nodaway	. 33	T.	1.1	5 T.	1 3	6 1.3	7 1.2	9											. 82		.2	8	T.		. 13			. T.			
orning	do	. 08	.0	4		. 1.2	24 1.6	3 . 1	6												1.4		8			. 10	0					
orydonouncil Bluffs	Chariton																				1			. 01	T.	T.		T.	.0	1		Т.
eston	do	86	0.	1 .1	0 T	T	1.5	10 .2	21		1	1				1					. 54			1	1	.0	6 T.		0	3		1

Table 2.—Daily precipitation for December, 1913. District No. 6—Continued.

Stations.	Watershed.	-			1	į.		1		1				1	1		of mo										1					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
lows-Continued.		-																														
nison	Missouri	. 09	. 09	. 08		. 21	. 56													T.	. 05				T.	T.		T.				7
liott	Nishnabotna	. 07	T.			. 50	1.03													T.	. 63					T.						
reenfield	Nodaway	. 25					1.00																		. 05		00000	. 05				
rlan	Nishnabotna Big Sioux		. 04			. 08	1.23													T.	. 15				T.	T.		T.				
ke Park	Little Sioux		. 00															****		.01												
moni	Grand	T.	. 02	. 21			1.02														1.36			T.				T.				
Mars	Floyd	. 06	. 02				. 07													T.												
nox	Missouri	30		. 22			1.05										770				. 96								70		T	
onttle Sioux	Grand Little Sioux.	. 10			. 05		. 98 1. 05										T.				. 19								A.		1.	
gan	Missouri		. 08				1. 15														. 23											
ount Ayr	Grand	. 03		. 22		. 32	1.27	. 23													.37		T.		T.	T.		T.				
ırray	do	. 11		. 13		. 42	. 77	. 07													. 37				10	T.						
orthborodebolt	Missouri Little Sioux.		.11			. 62	1.16													T	1. 20				. 10	T.						
nawa	Missouri						1.05													. 03												T.
eific Junction	do	T.				. 91	1.33													T.					. 01							
ock Rapids	Big Sioux																															
eldon	Floyd																									T.	T					
bley	Big Sioux Floyd	. 01	. 02 T.																													
oux City	Missouri	. 02	. 04	T.		. 12	.36													.01												. 05
encer	Little Sioux.	. 08												- 5						PRO .												
urman	Missouri		T.			. 83	1.68													T. T.	1. 07				. 02	T.		T.			T.	T.
ashta	Little Sioux.		. 00				- 20													A.											****	
Kansas.			1																													
ilene	Smoky Hill.	. 12			. 05															. 03					. 09			. 60				
gricultural College	Kansas		. 45	1.01		1.20	. 46											. 20		. 15			. 05	T.		T.		. 20		T.	T.	
ton	Solomon Missouri	T.	. 52	. 17	.30	2. 24		.10											T.	. 29	. 02			T.	. 10 T.		T.	T.				
tehison	Solomon	1.	. 15			1.60		. 29								****		. 13				T.			. 05			. 04				
akeman	Republican.		. 10			1. 21														. 05	. 08											
ue Rapids	Blue	. 05					1.17													. 12												
wker City	Solomon	. 01				1.93		11										. 11		. 33	- 04			10	. 15	· pp		T.				
ntralia	Blue Smoky Hill.	T.	. 18				1.05								T.			05	. 01		T		T.	.10		1.		. 20				
y Center	Republican.		. 05			1. 20		. 35										. 18		. 17	T.							T.				
lby	do	. 03	. 28	.70	. 65	1.35	1.05												T.	. 10	. 20						T.	T.			T.	
ncordia	do	. 07			. 76													. 02		. 15					- 07			T.				
ensmore	Solomon Republican.	T.	. 63		1.42															. 25					. 09							
resdenlsworth	Smoky Hill.	. 47			1.75													.17		. 10					. 27			. 18				
nmett	Kansas					1.67	. 42											T.		T.	T.		T.		T.			T.			T.	T.
kridge	Osage		.30		. 40			. 20													. 14				. 17	. 04		. 27	T.	T.	T.	T.
rnsworth	Smoky Hill.					1.70												. 14		T. T.	m		T.		. 06 T.						T	T.
ort Scott	Osage	65	. 87	. 20 2. 20		1.70 T.												. 50	1.	.18	T. T.		T.	T.	1.			T.			A.	1.
rnett		. 00		. 04		1.44												. 35			. 06		. 40						00			
odland	Republican.																															
ainfield	Saline			.38	. 62													. 01							. 04							110
nover	Blue Republican.	en l	. 12				1.31													-17						. 02						
arrison	Smoky Hill.	02	. 22			1. 19		.01										. 20		. 40	T.					. 02		T.				
Il City	Solomon	. 35	.56			1.31											T.	T.	T.	.30	. 10		T.		. 20							
olton	Kansas		. 27	. 40	. 18	2.50	. 66	. 10												T.	. 25		. 10		T.			T.	T.	T.	T.	T.
orton	do		. 10	. 35	. 15		1.09	T.															. 03		. 05	T. T.		. 02				
oxie	Solomon Kansas	. 03	. 15	. 55		1.91												10		. 21	.05		. 17		T.	1.		1.00				
wrenceavenworth	Missouri		. 25	.30	.05	1.80	. 80																.10	. 20				. 05				
hanon	Solomon	T.	. 48	. 45	.54	1.52	. 80 1. 02													. 75	. 10				T.							
nora	do	.06	. 28	. 76	.08	1.78	1.23	. 09	. 15											. 15	. 20				. 12	. 04						
oti	Smoky Hill.	T. T.	. 20	. 24	.90	. 78	. 50			***	***	****		****	****	****	****	. 08	T.	T,	T.	* * * *	****	****	T.		****	TP.				****
neolnndsborg	Saline	.00	. 16	. 07	. 38	1.12	. 60										. 20	. 04	.06	T	1.				. 08		. 17	A .				
Cracken	Smoky Hill. do Kansas	.01	.62	. 25	.62	2, 10	.50 .60 .52 .23										- 20	. 26					. 02		. 13		T.	T.				
anhattan	Kansas		. 26																				. 10	T.	.06	T.		. 08	T.		T.	
nneapolis	Solomon	. 01	. 24	. 21	.37	2,07	. 61													.01	T. T.			T.	.05			. 02				
																				21	.10		.30	. 10	10			T				
rton	Republican	.10	.47	. 79	75	.91	.70		****		****							4.		.30	.50				.30	.10						
erlin	do	. 05	.35	.80	. 85	1.52	1.20													. 12	.60											
eto	Blue	T.	. 24	. 23	. 23	1.86	. 58										T.	T.	T.	. 35	. 12		T.		. 15							
the	Osage. SalineRepublicando BlueKansasdo OsageSolomonSaline		. 93	2 92	.02	1.84	1 02							10		.07		. 15		. 03	. 16		. 20		T.	T.		. 15	15			
kaloosa	Osogo	. 10	54	1.11	1.	1 35	1.31							. 13				20		.02	T 20		26		.02			T	T	T.	T	T.
illipsburg	Solomon	.02	63	. 85	68	1. 15	.88											. 20		.51	.37		. 20		.20	****		T.			T.	
ALL W LIEU	DOMESTICATION																****															
			.52	.37	T.	1.70	.03											.09			.08		.30		. 15				T.		(17)	
enemo	do		34251	- 04	- 194	1.041	- 5105											. 1313			10.00		- 4.4	- 40	4			. 40	1 WU	0000	8.0	0000
public	Republican. Smoky Hill.	T	. 14	00	.21	1.70	1. US	T.				***					.00	19		T	T				12	1.		.03				
ssell Springs	do	T.	.15	.50	.35	2. 25	.50	4.0										. 01			. 05											
ssell Springs	Republican .	. 01	. 11	. 55	. 39	. 92	.96														. 12				.06							
ing	Smoky Hill.	T.	.08	. 22	.50	1.80	. 55											. 28	T.	. 03	. 15 T.		T.		.20			.11	T.		T.	
tt	do	.02	. 19	. 60	. 52	1.03	. 41											. 18		. 03	T.		T.		T.		T.					
ith Center	Solomon Kansas	.01	. 36	. 47	.70	1. 25	.87											00		- 00	.26		19		0.02	T		. 12	T			.01
huna	Smoky Hill	011	97	25	66	2.5	49													02								T.				
llev Falls	Kansas		. 80	.72	. 10	2.01	. 40	. 05													. 25		.10	.02	T.			.06	.04			. 01
nland	do		53	40	0.4	1 60												. 13		- 04	- 14	- 23	. 04		1.			-17	, Ua		. 02	T.
akeeneyallace	Smoky Hill	02	AR	34	70	2 68	52										The	12	.01	.11	T.	****	.02		. 15		****	****	****	****	****	****
11900	QO	. 04	. 26	.32	. 65	.72	. 24		****											.00												

TABLE 2.—Daily precipitation for December, 1913. District No. 6—Continued.

															1	Day	of me	onth															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Missouri.												11/																					
Amoret	Osage		.39	. 25	T.	1.60	T.											.30			. 02		.40		T.	T.		T.	T.		T.	T.	2.9
Appleton City	do		. 20																														3.2
Arlington	Gasconade																		.12								. 05						1.3
Arthur	Osage									****											.20								***	****	****	****	
Avalon	Granddo		.10	.30																				. 50		0000			. 10				2.6
Bethany	Osage	m	70	.06	T.	1.37												200								95		****	08		****		2.6
Booneville   I	Missouri		1.	T.	A.													05	.04		.08		. 40	. 65		7	****		. 00		****		2.1
Brunswick	Grand			.12		18	1.08											.00	.03	****	.11	T	T.	. 47	T	T. T.	****		. 05	****	****		2.3
linton	Osage	.00	. 20			1.60	. 17		****											.17		T.		. 24					. 00				2.5
Columbia	Missouri				T.	. 63										T.		. 04			. 18		.87	. 03		.07		. 03	T.			T.	1.9
Conception	do	T.	.04	. 29	T.	.56	.80													T.			T. T.	T.	T. T. T.	T.		T.					2.0
Crocker	Gasconade					1.30															T.		T.	. 36	T.	. 55							2.2
Duncan	Osage		.01	.04		1.10	.29							T.	.02	.01					T.	T.	. 05	.34	T.	.06			T.				2.2
Eldon	do	T.	T.			1.16															.05		.36	.22	****	.27			. 02				2.4
Fayette	Missouri		T.			. 66	. 20											. 03			. 26			.80					T.				1.9
Fulton	do						.72									T.					. 18		. 10	. 40		. 05		T.					1.4
lasgow.	do	.16		.06			. 42	.96													. 14	.06		. 42					0000				2.2
Frant City	Grand			. 25																	. 65		T.	T.	T.		. 20	T.			T.	T.	2.8
Tarrison ville	Osage																				. 05	.08		.32							****		3.4
Hermann	Missouri	. 03						. 03										.07	.03				****				.01		T.	T.			1.1
Houston	Gasconade	****		T.		. 60								T.				. 40					T.	. 12		.30			T.				1.4
lefferson City	Missouri	. 40		10	00	7 00	.80								700			****	.20	****	40			.70	70	T.			****		en.	(ID	2.4
Kansas City	do		.58	. 12	. 02	1.02	. 14	.01							T.			. 13	.01	.11	. 18		. 18					. 22			T.	T.	3.3
Keytesville    Kidder	Grand		.09			.51			****							****		****			.27		.50				****			****	****	****	1.8
Lamonte	Missouri					1.45	98								****	0000		90	0000				0.000										3.0
Lebanon	Osage				1.	.90	. 20																	.00		50				****			1.9
Lexington	Missouri			.30		27	1.45											T	. 13	****		.06						****	06				3.4
Liberty	do					1.65	57					****				****		15	. 10	. 27	T.							05				****	3.8
Lockwood	Osage		. 15		T.	1.30												24					.51		T.	.16		. 00	T.	0000	1		2.5
Marshall	Missouri		.07		T.	. 99									T.		T.					.02		. 45	T.			T.	.02			T.	2.3
Maryvillell	do	.37			T.	.39	.47	.30													. 43				. 05	. 05						33	2.5
Mount Vernon	Osage		T.	.10	. 10	. 88																	1.00		. 25								2.3
Nevada	do		. 44	.14		1.84		. 15										.40		.09	T.	.40	T.	T.				T.	T.				3.4
Oregon	Missouri			.39	1.00		. 97														. 22		.02		T.			. 03		T.			2.6
Rolla	Gasconade.					.71												.24					T.			.30							1.3
St. Catherine	Grand		T.	. 12		T.	. 88														. 15		T.	.21				T.	. 03				1.4
St. Charles	Missouri					T.		T.									T.							. 20		.31							. 1.0
St. Joseph	do	T.	. 64			1.08									T.		T.			.08	.04		. 09		T. T.	T.		. 03		T.	T.	T.	2.8
St. Louis (1)	Mississippi			T.	T.	. 12	.01	. 01								T.		. 12				T.	. 20		T.	.94		T.	T.	T.		T.	
St. Louis (2)	do	· · · ·	· · · · ·	T.				T.								T.		. 12			. 17	.03	. 03	. 24	T.	1.43	.10		T.		****		2.2
Sublett	Chariton	T.	T.			. 50	1.00														. 20	.50		. 25									2.4
Tarkio	Missouri					1.63																	. 15	.05	****			****					3.1
Trenton	Grand		. 48			1.32	.08												0000	.17			. 15				0000	. 10			T.		2.3
Unionville	Chariton					2 00		. 10								T.					.20	.70	****	.25		· · · ·			.03				3.6
Warrensburg	Missouri		. 17	1	1	1.69														T.	. 19	T.	. 52		.14		(T)	. 20				T.	3.8
Warrenton	do		m	****	700	1. 27	.34											. 00				.09					T.		. 02		0000		1.2
	Osage		I L.	. 10	Lo	11. 61															. US	0000	. 04	.03	T.	. 21			. 11				. 3.4
Wheatland	do	1	1		1	1.33		1	1									. 20					.80		.10	1				1	1		2.

Precipitation included in that of the next measurement.
 Separate dates of falls not recorded.
 Precipitation for the 24 hours ending on the morning when it is measured.
 Precipitation is less than 0.01 inch rain or melted snow.

								Wyon	ning.													Mon	tana.					
Date.	Ba	sin.	Chey	enne.	Lara	ort imie.	Lar	ider.	New	eastle.	Pathi	finder.	Sheri	dan.	Yellstone		Bill	ings.	Dill	on.	Ha	vre.	Hele	ena.	Lev		Ma	lta.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	48 50 46 47 40	20 16 6 4 - 2	30 24 26 28 30	23 15 19 18 26	34 35 36 40 38	21 26 12 21 21	30 28 24 21 35	24 17 8 6 12	38 32 30 38 41	30 28 22 24 32	30 28 27 25 31	25 21 19 14 19	35 35 39 33 46	23 25 17 14 16	27 27 33 39 35	12 7 6 15 8	44 44 47 47 47	24 14 14 12 14	39 38 38 39 40	12 13 8 2 10	38 36 38 36 49	16 10 10 10 9	39 32 23 30 32	22 15 15 13 14	34 43 50 49 51	19 10 11 18 19	30 29 30 29 33	1:
6 7 8 9	50 56 50 46 40	- 1 10 - 6 - 8 - 9	31 41 30 35 35	15 8 11 10 18	33 23 29 30 33	- 20 - 2 0 2 5	40 23 24 25 20	10 0 0 - 4 - 4	40 32 40 42 45	28 18 18 18 22	27 30 29 21 28	9 9 14 3 2	41 30 46 56 56	18 12 12 12 12 12	37 39 35 37 40	10 20 11 11 11	44 43 48 51 53	14 11 10 27 24	41 40 37 40 40	11 12 10 11 14	34 48 45 51 52	16 19 18 23 15	35 44 37 34 35	16 21 20 17 15	42 46 50 56 61	19 18 11 18 22	28 30 34 36 34	11 11 11 11 11 11 11 11 11 11 11 11 11
1 2 3 4 5	34 30 30 29 30	- 11 - 9 - 7 - 9 - 8	41 32 37 39 41	15 13 10 14 15	37 33 32 32 40	- 1 0 0 - 1 1	24 22 20 26 25	- 4 - 3 - 1 5	45 48 44 42 48	28 22 18 18 28	34 28 26 35 33	22 10 2 14 21	47 48 49 36 46	8 13 9 11 14	41 36 37 40 38	15 16 11 19 12	55 51 51 41 50	23 21 16 11 13	41 42 45 46 48	15 10 12 12 12 15	49 51 41 43 46	27 19 19 14 34	46 41 33 39 46	21 24 21 20 23	51 51 49 44 46	21 19 20 19 21	38 36 40 39 42	21 18 11 11
6 7 8 9	26 24 26 29 29	- 12 - 9 - 6 - 5 - 6	32 33 35 19 23	15 12 8 9 0	33 25 28 25 25 22	10 0 0 - 1 4	24 22 24 23 16	5 3 2 14 - 8	44 44 42 30 20	20 18 18 12 2	26 31 35 28 16	16 6 23 15 - 1	43 37 42 22 31	12 13 13	29 32 28 24 24	3 4 11 8 0	49 45 45 25 30	14 8 15 15 15 - 2	45 45 42 40 39	16 13 10 5 3	48 35 31 22 29	19 10 13 7 0	32 24 33 30 23	17 12 13 13 7	50 51 32 20 27	14 14 18 16 5	39 38 28 27 22	10
11 12 13 14 15	26 24 21 20 22	- 11 - 9 - 8 - 9 - 12	27 29 30 22 32	1 11 12 3 3	21 31 32 30 32	- 3 - 6 2 - 10 - 11	6 3 19 25 15	- 15 - 21 - 2 - 8 - 10	24 28 28 28 28 24	10 8 10 14 12	10 20 24 19 26	- 8 6 17 11 9	37 35 32 29 21	- 1 - 6 - 1 - 5	23 22 24 22 28	- 2 9 11 8 13	34 37 30 24 24	4 8 14 16 1	37 39 40 40 43	0 4 9 11 15	34 37 16 16 14	- 1 2 2 - 5 - 6	21 27 28 24 30	5 8 20 9 14	26 30 30 31 35	2 0 12 3 2	18 24 20 14 15	
6 7 8 9 10	20 20 18 18 26 34	- 9 - 12 - 16 - 17 - 8 - 4	33 30 37 28 32 45	15 14 9 5 11 22	34 32 32 26 38 40	- 4 18 0 2 - 10 2	23 15 9 4 17 46	- 2 - 7 - 12 - 14 - 13 - 5	28 28 24 24 24 30 36	6 14 12 14 14 14	27 23 26 22 24 33	17 5 14 - 3 4 13	38 39 42 38 40 48	13 8 4 3 9 7	34 28 31 24 28 36	21 12 8 1 11 20	38 37 41 30 36 38	11 6 14 4 0	42 44 43 43 41 42	12 14 13 14 17 17	17 36 44 30 22 35	2 0 18 9 6 7	38 29 29 23 24 45	21 18 14 13 11 21	32 42 37 37 37 40	10 10 15 13 2 3	11 18 20 22 22 22 26	- 8
Ins	32.8	-5.4	31.8	12.3	31.8	4.5	21.9	-0.7	35.1	17.8	26.5	11.2	39.3	9.6	31.5	10.4	41.3	12.5	41.3	11.0	36. 2	11.1	32.	15.9	41.3	13. 2	28.	5.3
		Mon	tana.					N	orth I	Dakota										S	outh I	Dakot	a.					
Date.	Miles	City.	Por	olar.	Bert Age		Bism	arck.	Dicki	nson.	Jan tow		Willi	ston.	Ab		Ellin	igson.	Hur	on.	Kad	oka.	Kim	ball.	Pie	rre.	Ra	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	41 38 40 41 42	29 18 22 20 18	35 37 45 43 49	20 6 11 16 14	42 32 37 46 48	14 19 23 23 15	38 31 30 35 45	26 25 25 20 19	40 28 42 46 46	16 17 24 20 20	34 33 27 40 37	21 23 24 32 25	35 26 28 40 44	16 15 16 17 19	44 45 43 40 42	30 43 43 35 25	44 33 35 48	21 19 22 16	39 43 41 44 40	34 36 36 34 28	40 37 32 37 36	31 30 27 22 28	43 43 42 44 42	35 35 35 37 32	39 38 36 42 40	36 32 33 30 31	41 31 39 45 45	30 21 21 21 34
6 7 8 9	44 55	28 14 19 15 24	40 37 40 43 48	19 2 13 15 13	36 28 43 47 57	14 4 10 8 8	34 25 44 48 53	14 5 17 17 20	32 26 45 50 56	23 - 1 13 18 16	33 24 42 42 48	21 7 10 20 21	30 32 40 44 50	10 5 21 19 19	40 30 45 50 52	25 25 10 14 17	46 28 50 55 55	23 2 14 18 20	37 23 46 53 52	22 12 11 15 21	35 32 45 48 53	22 9 26 20 21	38 28 42 58 49	28 10 10 21 32	37 28 48 54 53	25 15 17 24 27	47 36 45 57 59	25 14 24 26 25
1 2 3 4 5	52 48 40	17 22 15 15 15 18	48 47 41 36 46	9 20 14 10 16	55 48 48 48 48	7 15 2 15	56 52 54 34 49	19 22 18 12 20	53 50 48 34 46	18 24 13 9 18	42 48 50 32 46	22 26 22 14 18	47 46 43 34 45	18 24 17 10 23	50 54 50 46 50	17 14 14 14 14	54 53 52 45 49	11 19 17 10 21	.57 52 56 38 50	19 14 20 17 22	56 52 51 36 49	27 20 20 17 21	54 45 49 41 43	30 20 21 29 23	55 50 50 37 51	24 23 25 20 23	56 52 50 48 49	26 26 21 21
6 7 8 9 0	38	13 13 15 17 5	42 43 32 24 25	15 7 10 11 - 6	47 45 38 32 32	10 2 6 5 - 6	49 40 39 23 27	21 14 18 5 0	45 47 47 30 31	20 8 11 9 - 5	45 38 44 23 25	23 19 15 14 0	42 42 35 17 28	18 12 12 16 0	52 46 45 30 25	14 15 12 15 1	50 48 42 30 31		53 44 48 33 22	22 16 15 16 1	50 45 48 30 22	17 14 16 16 - 4	48 42 46 40 24	23 18 17 22 0	47 44 48 33 26	23 17 21 19 7	50 46 47 34 31	25 21 15 17
1 3 4 5	28 28	7 7 11 14 2	27 26 22 11 30	- 2 5	33	- 7 0	21 · 28 24 13 15	11 7 1 3 2	22 37 27 13 20	$-{2\atop 2}\atop 0$		2 1 3 4 -10	30 18 10	10 2 - 1 - 2 - 2	23 36 30 25 11	5 5 5 -10	21	- 1 - 3 - 5	28 35 34 14 15	4 6 4 -10	28 36 34 22 28	6 5 6 12	29 38 33 25 19	6 8 8 - 3	27 35 29 15 16	6	34 33 35 25 32	11 10 14 16 10
6 7 8 9 1	42 42 34	16 12 17 12 17 17 15	20 26 41 38 34 38	9 - 4 12 12 - 4 3	42 43 35 27	- 3 9 14 5 4	24 18 46 42 37 22	4 7 10 18 13 16	27 30 41 43 35 43	- 7 - 2 12 14 16 13	15 16 37 38 35 23	- 9 3 7 10 17 14	21 23 40 42 37 32	2 1 16 14 7 15	21 22 33 41 -31 21	- 7 7 0 13 7 7	26 36 45 44 35	12 18	28 21 32 42 38 26	0 7 0 14 12 16	33 36 45 50 30 43	. 8 8 11 5 4 12	31 28 39 41 38 34	3 11 6 17 15 15	24 29 38 43 40 38	7 11 8 23 18 14	39 40 52 41 32 45	14 18 20 20 17 19
Ins	39.7	15.7	35.9	8.4	41.5	7.24	35.5	13.8	38.1	11.4	32.3	13.5	33.8	11.6	37.8	13.9	40.3b	10.9 b	38.2	15.1	39.3	15. 5	39.2	18.4	38.4	18.9	42.5	20

Table 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 6—Continued.

		í	South 1	Dakoti	h.			Colo	rado.										Nebra	ska.								
Date.		oux ls.§§		ter- n.§§	Yanl	cton.	Den	ver.	Wı	ay.	Alı	na.	Bric		Gra Islan		Ha	ngs.	Heb	ron.	Line	oln.	No. Pla	rth tte.	Oak	iale.	Oms	ha.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	48 48 48 48 40	35 35 38 38 38 32	35 38 41 41 43	27 30 34 34 25	43 46 45 47 44	36 41 41 43 37	30 30 31 32 34	27 22 21 22 30	46 42 35 45 43	39 30 28 33 33	46 47 48 46 44	39 43 45 44 39	37 33 32	32 29 26	46 50 50 50 43	41 44 46 46 46 42	34 32 30 35 35	25 25 25 25 25 30	49 50 53 50 50	44 47 50 49 44	49 52 54 51 46	45 47 50 46 43	43 48 47 47 43	38 40 40 43 33	45 45 45 47 45	39 40 43 45 37	50 54 52 52 47	46 46 49 47 42
6 7 8 9	44 40 40 49 50	32 10 10 12 24	41 25 41 47 52	25 8 9 13 18	43 26 40 52 49	26 16 15 20 26	39 32 38 39 41	17 10 10 12 15	35 30 37 38 41	28 11 16 13 16	39 40 42 43 49	33 20 17 20 22	37 28 33 30 32	26 5 11 6 14	40 33 40 48 52	37 22 21 24 26	33 28 37 40 41	28 2 12 8 15	44 37 37 37 42	37 23 19 23 27	43 31 38 46 50	31 22 20 27 31	39 36 46 42 49	26 17 15 20 22	40 25 40 49 50	25 12 12 18 25	45 31 37 48 48	31 20 21 28 33
1 2 3 4 5	50 58 59 55 55	24 22 24 23 22	57 57 57 40 50	16 14 14 17 20	61 48 46 42 45	25 24 22 22 22 27	40 36 37 42 42	12 10 12 14 15	43 39 40 42 42	15 13 19 13 13	44 48 43 48 43	21 20 22 22 22 17	31 32 31 32 37	5 11 7 5 10	52 48 47 49 48	28 28 26 29 29	37 36 38 34 40	7 17 10 14 12	49 51 45 50 49	28 30 31 25 27	50 54 46 48 52	31 34 33 28 32	46 51 51 50 48	21 18 21 18 18	53 49 45 42 46	21 23 19 21 26	55 55 51 45 50	34 34 34 30 34
6 7 8 9	49 48 49 48 25	23 22 22 23 5	50 45 46 30 22	18 13 13 14 1	46 45 48 42 26	27 22 17 26 7	36 35 33 24 20	14 15 8 8 1	42 42 36 32 25	24 19 19 25 14	45 47 42 38 35	25 27 17 33 14	35 32 31 23	5 9 16 1	46 47 47 48 16	28 26 23 33 14	38 32 28 21 25	16 7 20 4 15	38 49 48 42 31	30 32 23 31 16	47 51 47 43 38	29 30 24 33 13	47 50 36 33 24	23 17 16 17 6	45 46 43 35 23	21 18 14 23 3	45 43 45 44 36	29 29 27 34 15
11 12 13 14 15	35 30 22 20 20	5 6 5 5 - 3	25 35 33 23 15	0 5 6 9 -10	31 33 36 19 18	9 9 17 10 2	24 33 30 28 32	0 2 13 5 3	27 36 32 32 32 33	4 4 4 4	28 32 31 30 23	5 11 12 20 1	17 32 27 26 28	- 5 - 6 - 1 11 - 6	20 21 24 28 14	4 10 9 20 6	25 22 28 22 22 22	- 1 - 3 - 2 15 5	29 30 34 24 22	3 10 11 22 8	27 28 32 32 32 20	9 10 20 17 10	31 27 29 28 22	5 5 5 10 11	25 28 29 22 14	1 0 5 10 3	32 29 31 31 19	12 14 26 19 8
86 17 18 19 11	26 28 30 43 36 40	0 5 7 12 10 10	25 23 29 39 38 25	$   \begin{array}{r}     -10 \\     -1 \\     \hline     6 \\     12 \\     11 \\     12   \end{array} $	30 30 32 41 40 27	5 12 4 19 11 20	34 35 38 30 33 52	9 15 13 3 1 15	33 36 39 37 34 44	11 15 12 7 3 14	23 32 33 36 26 30	- 2 8 3 5 5 13	33 28 28 23 28 40	9 7 3 1 1 1 12	29 29 28 34 31 34	6 14 9 14 12 19	33 33 33 35 30 33	20 8 6 5 1 6	25 28 33 35 32 28	3 18 9 14 14 22	27 32 31 38 33 28	6 22 14 18 19 19	23 35 34 40 24 37	10 12 9 12 10 12	24 30 29 37 34 24	0 10 1 11 8 20	26 32 32 39 36 28	10 25 15 20 23 19
fns	41.3	17.4	37.7	13.0	39.4	20.6	34. 2	12.1	37.4	16.2	38.7	20.0	30.6e	8.7e	38.5	23. 4	31.9	12. 2	39.4	24.8	40.8	26. 2	38.9	18.4	37.2	17.9	40.9	27.5

					Io	wa.							Kar	1883.								Miss	ouri.			
Date.	Valer	ntine, br.	Clark	nda.§§	Sible	oy.§§	Sioux	City.	Col	by.	Cone	ordia.	Sal	ina.	Тор	eka.	Wak	eeney.	Colu	mbia.		nsas ity.	St. I	ouis.	Un	ion- le.§§
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	37 36 43	33 32 33 35 35	55 56 54 50 49	50 50 50 48 43	41 46 46 49 43	34 37 40 43 34	44 48 48 32 44	39 43 44 44 44 38	49 45 44 48 48	40 35 31 40 33	54 52 54 52 48	46 50 51 48 44	53 52 51 54 52	45 44 49 49 44	56 53 54 53 49	51 50 52 48 47	50 49 51 49 48	42 44 46 47 40	58 61 59 54 50	51 50 54 49 47	57 54 54 54 54 50	52 52 52 47 48	63 63 60 54 54	51 54 54 48 46	60 55 56 54 48	50 52 50 45 42
6 7 8 9.	36 31 46 53 57	22 13 19 20 20	45 44 35 44 50	43 21 15 15 19	42 25 35 51 50	32 11 9 14 19	44 28 38 52 47	28 16 18 25 29	35 31 33 41 35	31 9 10 9 16	46 34 40 45 50	34 24 21 27 30	45 39 38 47 48	39 26 20 24 25	50 38 39 45 50	38 25 23 27 32	42 38 38 44 48	34 23 23 24 27	57 47 35 43 48	25 20 23 31	53 42 40 44 50	42 27 21 30 32	60 52 36 44 50	50 24 22 - 26 32	57 28 27 44 50	40 24 15 14 23
11 12 13 14 15	53	24 17 18 15 23	53 54 50 30 51	25 25 29 25 25 25	59 52 51 43 45	25 23 17 23 23	55 50 45 42 45	30 29 22 26 29	33 42 33 33	16 14 20 14 10	53 54 52 53 54	31 35 33 29 30	53 55 52 51 53	26 29 29 27 27 28	54 54 55 51 50	30 32 35 36 30	55 46 46 49 48	26 26 30 26 24	54 56 54 44 47	26 34 34 33 36	56 56 52 46 49	34 39 40 40 32	53 58 58 56 44	37 38 40 42 36	55 56 50 46 48	29 31 34 25 28
16 17 18 19 20.	50 51 42 33 24	19 15 14 16 4	46 45 44 45 28	24 30 22 21 28	47 47 46 40 19	20 15 15 19 5	44 45 44 39 29	27 20 21 29 10	36 36 34 35 33	20 28 23 32 16	45 47 46 45 38	33 32 26 38 14	47 45 42 45 40	34 39 28 31 22	49 44 38 49 46	38 33 26 35 17	41 42 48 46 36	30 32 29 30 19	50 47 45 47 47	36 32 24 30 28	49 47 48 48 48	38 39 32 34 22	51 52 45 47 52	34 39 33 32 37	46 47 48 42 34	34 23 24 20 26
21 22 23 24 25	39 20	12 6 10 8	24 30 32 34 22	- 4 - 4 - 4 25 14	33 24 38 14	1 7 14 - 2	30 29 29 25 20	10 13 21 12 3	27 26 34 28 25	5 10 10 20 8	31 31 39 32 20	16 19 20 20 11	32 31 34 31 28	12 25 19 21 10	32 29 30 32 27	13 20 26 27 12	37 32 36 31 23	14 22 20 22 8	33 31 32 33 33	21 25 29 30 21	31 30 35 33 33	15 21 26 28 19	39 38 38 38 35	30 29 32 33 29	27 30 38 30 28	4 6 2 24 20
26	35 39 45 43 40 47	15 10 9 15 12 9	25 36 30 30 27 31	- 3 - 2 10 10 8 9	27 32 29 41 41 28	- 1 9 1 14 10 13	27 31 30 41 38 25	7 18 8 19 12 21	25 29 31 28 23 34	13 16 12 10 8 13	31 36 36 38 26 31	8 21 15 15 20 23	27 28 30 28 25 30	5 20 3 11 9 17	29 32 31 28 26 33	9 26 26 20 18 26	23 31 37 35 31 43	7 21 15 18 16 17	27 34 35 32 30 30	21 27 29 29 28 29	30 31 84 32 28 32	16 25 27 24 21 27	34 34 35 36 34 34	28 28 30 30 29 29	30 31 32 29 28 27	16 14 22 24 19 20
Means	41.4	17.2	40.9	21.5	39.5a	17.6a	39.0	22.9	34.6	18.5	42.4	27.7	41.5	26. 1	42.1	29.9	41.1	25.9	43.6	32.1	43.3	32.3	46.7	35.6	41.3	25.8

<sup>•,</sup> b, •, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

### CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 7, LOWER MISSISSIPPI VALLEY.

ISAAC M. CLINE, District Editor.

### GENERAL SUMMARY.

Moderate temperature conditions prevailed generally, except that a cold wave of marked intensity overspread the western portion of the district from the 19th to 25th. The precipitation occurred generally in two periods, viz, 1st to 6th, and 13th to 27th.

The following table summarizes the chief features of meteorological interest in the various portions of the district:

		ormal.		ormal.	m in 24				ber o	of	etion.
States and portions of States lying within District No. 7.	Mean temperature.	Departure from the normal.	Mean precipitation.	Departure from the normal	Greatest precipitation hours.	Mean snowfall.	With 0.01 inch or more.	Clear.	Partly cloudy.	Cloudy.	Prevailing wind direction
Colorado	22. 2 28. 9 37. 3 35. 3 39. 4 40. 1 42. 4 43. 6 46. 9 51. 5	-7.3 -8.0 -1.2 +2.1 +0.4 +3.8 +1.5 +1.2 0.0 -0.2	2. 98 1. 97 4. 16 3. 21 4. 30 2. 28 2. 14 3. 26 3. 03 3. 20	+1.98 +1.62 +2.61 +2.46 +3.20 -0.45 -2.12 -0.28 -1.90 -1.41	2.53 1.78 3.85 2.30 2.62 2.25 1.05 3.11 2.29 2.40	34.6 14.3 5.1 4.5 4.5 8.4 3.2 4.8 0.9	8 6 8 9 10 7 8 9 8 7	16 15 12 10 10 9 12 7 10	7 8 5 5 5 4 4 7 6 5	8 8 14 16 16 18 15 17 15 15	w. nw n. s. n. n. e. n.

### TEMPERATURE.

Mean temperatures ranged from 0.1° to 5.3° above the normal, except that over the western and extreme southern portions of the district there was a deficiency of from -0.2° to -14.0°. Maximum temperatures of 70°, or higher, were reported from all States or parts of States in the district, except in the Colorado and New Mexico areas. The highest temperature recorded, 90°, occurred at Donaldsonville and Schriever, La. Minimum temperatures of 20°, or lower, were reported from all States or parts of States in the district, and over the north-western portion minimum readings were zero or below in many localities. The lowest temperature recorded, -26°, occurred at Buena Vista, Colo., and a minimum reading of -22° was reported from Elizabethtown, N. Mex.

#### PRECIPITATION BY DRAINAGE AREAS.

Arkansas River and tributaries.—The precipitation was above the normal throughout this drainage area, except at a few stations. In Colorado the average from 37 stations was 2.99 inches, about 1.9 inches above the normal. Over those portions of the Arkansas Valley proper that lie in Kansas and Oklahoma, the average from 46 stations was 3.72 inches, about 2.6 inches above the normal.

In New Mexico the average from 36 stations in the Canadian Valley was 2.06 inches, about 1.6 inches above the normal. Over those portions of the Canadian Valley that lie in Texas and Oklahoma, the average from 31 stations was 3.53 inches, about 2.7 inches above the normal. The amounts from 21 stations in the Cimarron Valley averaged 2.73 inches, about 2.4 inches above the normal. Over the Verdigris Valley the average from 9 stations was 4.17 inches, about 3 inches in excess of the normal, and over the Neosho Valley the average from 17 stations was 3.50 inches, about 1.8 inches above the normal. Below the Oklahoma-Arkansas line the precipitation from 15 stations in the Arkansas Valley proper averaged 3.40 inches, about 0.2 inch above the normal.

Red River and tributaries.—The precipitation was above the normal over the portions of this drainage area that lie in New Mexico, Texas, and Oklahoma, where the average from 50 stations was 4.55 inches, about 3.4 inches above the normal. Below the Texas-Arkansas line there was a general deficiency, the average from 19 stations being 3.65 inches, about 0.4 inch below the normal.

Mississippi River south of St. Louis and small tributaries.—The precipitation was below the normal over this drainage area, except in a few widely scattered localities. In the immediate Mississippi Valley the average from 40 stations was 2.32 inches, about 1.6 inches below the normal. The average from 22 stations in the valley of the White was 3.09 inches, about 0.2 inch below the normal. Over the Yazoo Valley the average from 18 stations was 2.95 inches, about 1.9 inches below the normal. In the valley of the Big Black the average was 2.86 inches, about 1.8 inches below the normal. In the Ouachita Valley the average from 19 stations was 3.31 inches, about 1.1 inches below the normal.

Louisiana coastal plain.—The precipitation was generally deficient over this drainage area, the average from 37 stations being 3.03 inches, about 1.5 inches below the normal.

#### SNOWFALL.

Snow occurred generally over the northern and western portions of the district, the amounts being heavy in many localities, and at the close of the month the ground was covered over the western and extreme northern portions, the amounts on the ground ranging from a trace at lower levels to 60 inches or more in the higher mountains. Over the Arkansas drainage basin in Colorado the snowfall was unusually heavy, being above the normal in nearly all portions of the area. The maximum monthly fall was 94 inches at Fairview, Colo. At the close of the month, the average amount of snow on the ground over the Arkansas watershed in Colorado was 21 inches, which is 14 inches more than the normal amount for December 31. The snow on the ground represented 6 to 11 times

28854-14-6

the normal amount of water for that date. In New Mexico the snowfall was unusually heavy, the fall so far this season being almost twice the normal amount. Owing to the steady cold weather, most of the snow remained on the ground at the close of the month. The condition of the soil was favorable to the absorption of the water from that which melted, and in addition the stored depth in the mountains was much above the normal at the close of the month. On the whole the prospects for a good flow of water for irrigation, during the coming season were excellent at the close of December.

RIVERS.

The Mississippi River below St. Louis fell slowly during the greater part of the month. There was an increased flow of water in the Arkansas River and tributaries, and the lower Arkansas was navigable throughout the month. Moderately high water prevailed in the White River, but no flood stages occurred. Decided rises occurred in the Red and Ouachita Rivers during the first and second decades, but lower stages prevailed during the latter part of the month.

TABLE 1.—Climatological data for December, 1913. District No. 7, Lower Mississippi Valley.

			rears	Temp	erature	, in c	legre	es Fah	renh	neit.	Prec	ipitation	, in in	ches.	lays,		Sky.		irec	
Stations.	Counties.	Elevation, feet.	Length of record, years	Меал.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 21 hours.	Total snowfall, unmelted.	Number of rainy d	Number of clear days.	Number of part-	Number of cloudy days.	Prevailing wind, direction of.	Observers.
Colorado.						111														
alban	Fremont	6,098 9,396 8,200	14 7 25 33 12 4 6	22.0 31.0 24.6	- 7.6 - 5.9 - 5.7	42 42 57 44		- 1	21 25 25 25 25	48 35 40 34	0. 85 2. 61 2. 80 2. 54 2. 71 5. 70	+0.41 +2.37 +2.28 +2:27	0.75 1.00 1.55 1.03 1.30 1.69	9. 2 37. 0 31. 2 24. 6 42. 4 64. 0	3 10 7 7 6 9	19° 22 22 14	5ª 3 3 9	6a 6 8	nw. sw. n. n.	C. A. Short. H. B. Rice. U. S. Weather Bureau. Colorado College. F. G. Willis. George A. Mayes. Mrs. Mattie A. Kerr.
ads airview 'remont Expr. Station. arfield Iamps	Custer	9,500 8,850 9,510 5,400	4 3 3 20	23.6	- 5.9	54	11	0 - 5	24	40	6. 67 5. 01 2. 04 2. 15	+1.76	0.91	94. 0 54. 1 31. 7 21. 5	9 9 6 9 7	12 22 21 15	13 3 5 9	6 6 5 7	ne. w. w.	Elizabeth L. Grey. U. S. Forest Service. Lloyd N. Felton. W. Hamp. John E. Graham.
Hermit Lake	Custer Las Animas	10,000 5,711 3,380 4,052 10,265	3 21 18 2 19 23	28.1	- 5.3 - 3.8 - 4.0 - 7.1	46 48 46 43	10 1 7	- 5 3 -12 - 1	22 30 25 30	41b 34 46 30	3. 63 4. 10 2. 80 2. 77 6. 49 3. 16	+3.41 +2.42 +5.81 +2.59	1. 10 2. 00 2. 50 1. 12	59. 0 31. 0 1. 7 29. 9 76. 0 4. 2	7 6 8 8 9 8	15 9a 18 16 14 21	9 8a 2 6 10 4	7 13* 11 9 7 6	sw. n. w. sw. sw.	John E. Graham. S. W. DeBusk. Holly Sugar Co. S. M. Miller. Clyde C. McReynolds. J. T. Lawless.
as Animas	Bent Costilla Lake Elbert Las Animas	3,899 9,000 10,248 5,360 6,361	45 3 17 6 3	16. 6 19. 0	- 2.8	42	14	-10	20† 21†	38	2. 91 1. 83 1. 09 1. 87	+0.80	1.50 0.94 0.40 0.95	30. 0 23. 7 13. 0 31. 2	5 11 5 9	3 17 18	17 4 5	11 10 8	w. n. nw.	American Beet Sugar Co. Clara M. Wright. U. S. Weather Bureau. F. L. Palmer. Thomas Sawers.
Iarshall Pass [axey fonument forth Lake ueblo cocky Ford t. Elmo.	Las Animas Pueblo Otero	7,200 8,700 4,734 4,177 9,500	2 21 25 24 4	23.3 22.1 20.5	- 9.6 -10.1	58 47 46	28 31 1	- 6 - 5 -10	21 30	51e 41 39	2. 95 1. 35 2. 32 2. 87	+1.42 +0.89 +1.90	1. 35 0. 91 1. 75 1. 08	28. 0 41. 0 48. 0 35. 5 18. 2 17. 0 47. 5	9 9 8 8 8 3 7	12 15 20 21 11 23 17	2 3 4 4 13 2 8	17 13 7 6 7 6 6	ne. w. nw. nw. w.	W. L. Williams. L. H. Alberti. U. S. Forest Service. James W. Ingmire. U. S. Weather Bureau. P. K. Blinn. Daniel Clark.
alida. tonewall. rinidad. wo Buttes. wo Buttes Reservoir. ictor.	Bacado	5,994 4,100 4,250 10,100	14 7 17 2 9 22	15.8 25.3 24.4 21.8	-10.7 - 9.1	50 44 45	31 11† 3	-16 - 2 4 - 2	25 21 20†	52 41 32 29	2. 93 2. 11 4. 15 2. 10 3. 63 2. 25	+2.36	1. 25 2. 06 1. 12	34. 0 34. 5 47. 9 8. 1 11. 0 51. 2	5 7 11 10 6 8	21 14 14 15 0 18	5 5 10 18 7	6 12 12 6 13 6	w. sw. nw. nw. w.	M. D. L. Buell. G. A. Storz. Walter Dearden. N. G. Jones. Walter J. Krohne. Fred Jones. Miss Esther Caldwell.
ilas. Pesteliffe. Voodman Sanatorium. Portman. Oder.	Baca. Custer El Paso. Lake. El Paso.	7,864	19 2 12 2 2	27.5	-11.8	56	10				1. 54 4. 54 2. 90 1. 72	+0.90 -0.21	1. 20 1. 98 0. 60 0. 68	16. 7 42. 0 68. 0 22. 0	5 5 15 6	14 19 1 21	4 4 14 5	13 8 16 5	se. nw. nw. nw.	U. S. Forest Service. Woodman Sanatorium. Mrs. Lillie Wortman. J. E. Bingham.
New Mexico.	Mora	5,771	4								0.97		0.45	12.5	6	14	7	10		Agent E. P. & S. W. R.
lbert. urora ell Ranch lack Lake abeza ampana hacon	Union. Colfax. San Miguel. Colfax. San Miguel.	4,700 8,849 4,500 8,348 5,406 4,493	23 4 14 4 4 4 4				26 10†	0 8	23 22	41 30	3. 63 1. 85 2. 13 1. 13 1. 73 2. 08 2. 01	+2.85	1. 72 1. 15 0. 96 0. 68 0. 85 1. 10 1. 25	6. 0 23. 5 8. 0 16. 3 5. 0 8. 5 21. 5	6 8 6 5 4 6 5	14 9 16 10 15	11 11 3 16 4 10 24	6 11 12 5 12 11 5	w. nw. n. w. nw. e. w.	A. F. Chaves. Miss J. Lucero. C. M. O'Donel. Ralph T. Martinez. Agent E. P. & S. W. R. Do. Alfred Lucero.
imarron (near)	Colfax. Union. Curry. Guadalupe. Colfax	6,385 5,260 4,129 4,849 6,396	9 8 2 4 4 8	25. 6 31. 0 28. 2		55 55 52	2 11 12 1 1 2	- 5 9 - 8 7 - 1 - 22		46 32 45 31 38 58	2. 13 2. 06 1. 16 2. 28 2. 47	+1.50	1. 22 1. 15 0. 30 0. 70 1. 85	25. 5 13. 0 7. 5 9. 0 21. 5 16. 5	4 8 6 5 4	17 11 17 21 10 23	4 14 5 0 14 4	10 6 9 10 7	e. n. w. sw. n.	William French. Dr. N. E. Charlton. John H. Barry. Agent E. P. & S. W. R. Do. Miss M. Carrington.
olsom	Union Mora. Union Mora. Colfax.	6,399 6,835 4,444 5,680 6,722 5,784	13 53 3 2 4 1	19. 2 29. 4 27. 1	-14.0	44 55	31 14 6†	-10 2 0	26 22 22	42 34 42	1.54 2.29 1.73 2.06 2.31	+1.01	0.70 1.26 0.76	17. 0 9. 0 12. 0 21. 5 15. 0	6 4 4 4 6	24 19 15 16 22	1 4 10 14 4	6 18 6 1 5	nw. sw. nw. ne.	Clarence Summers. M. C. Needham. J. A. Bauer. W. H. Guthman. A. H. Meloche, jr. J. W. Johnson. Louis O'Brien.
appus. ake Alice ogan ykins (near) axwell (near)	Quay. Colfax. Quay. Roosevelt. Colfax.	4,000 7,160 3,851 5,000 5,894 4,400	2 4 7 3 6 5	33.2	******	55	14	- 2	23	42	1. 61 1. 90 2. 28 1. 85	******	0.80 1.00 1.78 0.64	2.5 11.0 17.5 9.0	7 3 5 6	20 12	3 3	8 16	w. sw.	Jesse Rickman. J. F. McFarland. H. Ackerman. D. N. Jackson. Dr. B. M. Porter.
elrose. iami Ranch ills (near). ontoya. ara Visa. alo Verde	Curry Colfax Mora Quay do Mora	6,000 5,985 4,335 4,225 5,880	5 2 4 7 2	22.6				- 6		48	1. 79 2. 49 2. 51		1. 69 1. 36 0. 60	16. 5 16. 0 8. 0	3 7 7	17 22 17	11 2 2 2	3 7 12 6	w. nw. w.	Farmers Development C J. E. LaRue. Agent E. P. & S. W. R. Willard Belknap. G. R. Anernathy.
samonte. easant View ortales	Union	5,784 4,004 6,660 8,200	4 2 3 15 9	35. 0 27. 2	- 4.2	61 53		2 2	21	45 37	0. 84 2. 01 2. 20 2. 72	+2.18	0.60 1.20 1.00 1.20	9. 0 11. 8 8. 0 28. 2	3 5 4 8	7 18 11 17	13 10 17 4	11 3 3 10	n. sw. nw.	J. J. Heringa. R. W. Boulware. A. R. Bowers. S. A. Wiseman. John P. Condon.
osebud.  oy.  int Vrain (near)  n Jon  lano  ringer.	Union Mora. Curry Quay Mora. Colfax	4,500 5,884 4,300 4,200 5,622 5,857	2 4 6 4 21	33.5 24.9 17.0	-13.7	46 56 48 50	30 1 12 1	0 - 1 - 2 - 10	21† 23 22† 22†	39 34 38	2. 22 0. 82 1. 42 2. 27 1. 27	+0.71	1. 15 0. 42 0. 55 1. 37 0. 91	14.5 5.0 8.0 15.5 18.0	5 2 7 8 6	9 14 21 22 7	12 9 5 7	10 8 5 2	ne. sw. nw. w.	H. A. Nachtrieb Agent E. P. & S. W. R. S. A. Dow. Jesse T. White. F. M. Hughes. Agent A. T. & S. F. R.
aylor exico (near) ementina icumcari (near)	Roosevelt	5,661 4,038 5,000 4,194 4,194	5 8 4	20.0		67	1	-11	22	46	2.62		1.06	22. 7	6	10	11 ·	20	n.	Agent E. P. & S. W. R. A. L. King. Miss Alice Blake John F. Seaman. Agent E. P. & S.W.R.R
lley	Uniondo Colfax Mora	7,600	8 2 8	21.0	- 6.9			0	6 20 25	49	3, 62 1, 63 1, 87	+ 1.49		41.5 5.0 29.5	11 8 6	13 20 16	12 3 1 3	6 8 14	s. n.	M. Letitia Payne. C. E. Anderson. H. W. Adams.

## MONTHLY WEATHER REVIEW.

Table 1.—Climatological data for December, 1913. District No. 7—Continued.

V -1			years.	Temp	erature	, in d	legree	s Fah	renh	eit.	Prec	ipitation	, in inc		days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	inch inch	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind tion.	Observers.
Texas.	Detter	2 676	21	33.2	- 3.2	54	11	4	23	35	2.84	+ 2.01	1. 10	12.1	8	17	7	7	gw.	U. S. Weather Bureau.
marillorthur City	Potter Lamar	3,676 590	21								7.32	+ 4.78	1.90	0	8 12	9	8	22 19	n. n.	J. F. Humphreys. H. M. Norman.
onham	Fannin	566	9	44.2		65 58	1 2	24	26 23	28 31	6.00		2.09 0.45	4.8	7	15	1	15	n.	R. M. Hibbard.
nadian	Hemphill Childress	2,339 1,869	20			08	2		20	91	3.60	+ 3.01	2.35	2.0	4	5	21	5	n.	George Baker.
ildressillicothe	Hardeman	1,406	5 8								5.80		1.58	3.0	10				 TO	C. W. Underwood. E. Homer Powell.
arendon	Donley	1,406 2,719		36.0		63 72	4	25	22 27	33 30 i	2.35	1 2 06	0, 90 3, 85	4.0	6	19	3 13	9	ne.	J. W. O'Neill.
rksville	Red River	3,397	13 10		+ 2.7	12	1	20	21	301	2.03	+ 3.06 + 1.59	0.64	5.0	7					Ft. W. & D. C. Ry.
ude	Armstrong Dallam	3,998	8	29.6		51	14	1	23	33	3.18		2.58	5.5	6					W. D. Griggs. E. B. Wilson.
nison	Grayson		13								5.45	+ 3.28	2.90	1.0	10 8	10	1 2 1	23 19	n. n.	Robert L. Smith.
nley	BowleClay	915	21	42.6	- 0.7	65	4	25	23†	29	4.77	+ 3.74	1.30	0	6	13	1	17	n.	C. K. Brown.
ferson	Marion										6. 15		1.95	0	10	7	6	23	ne.	J. C. Kistenmacher. J. E. Kinney.
ami	Roberts	2,743	10			59	1	9	24	32	2.17 1.86	+ 1.63	0.60	4.0 5.0	4	10		9	0.	S. J. Allen.
hiltreeducah	Ochiltree		10								3.30		1.10	3.0	6	13	7	11	n.	C. M. Grayum.
nhandle	Carson	3,450	4								3.20		1.00 2.20	8.0 T.	13	8	13 5	10 20	n.	J. Sid O'Keefe. Robert A. Miller.
ris	Lamar	592	24	44.0 33.0		53	1 41	- 24	23	29 38	6.81	+ 4.43	1.09	9.0	9	16	1	14	n.	C. S. Solomon.
emons	Hutchinson	1,563	11		+ 0.6	61	4	15	23	27	3.77	+ 2.43	1.80	4.0	6	19	0	12	n.	William H. Crawford.
ngo Crossing	Hopkins		3								6.82		2.50	8.0	9	10	9	19 8	8.	J. F. White. R. S. Chamberlain.
omero	Hartley	4,056 745	20	32.1	- 2.1	55 68	14	8 25	23†	36	2.42 5.72	+ 3.92	2.80	1.0	9	16	0	15	n.	R. A. Gibbs.
ermanratford	Grayson		1		- 2.1	46	4		23	31	2.37		1.13	7.5	9	4	61	11		J. W. Elliott.
ilia	Swisher	3,501	15	34.5	- 3.3	55	41	- 1 3	23	37	4. 12	+ 3.11	1.41	11.0		20	5	6	n.	Lou Mulhall.
ellington	Collingsworth		3				****				1.95 6.08		0.60	6.0 T.	9	4	14	13	nw.	J. D. Camp. J. B. Newberry.
infield	Titus		0			****		*****												The state of the s
Kansas.	Rice	1,684	3	34.0		55	15	2	26	32	2.81		1.20	3.5		15	4	12	8.	Geo. Klady.
thony	Harper	1,329	16	36.4		58	1	9	26	28	2.72		0.93	2.5		12	12	20	ne.	R. H. Beebe. C. W. Carson.
hland	Clark	1,951	25 20	36.4		58 61	15	10	23 26	36	3.79	+ 1.52 + 2.50	1.50	2.5		1	13	17	8.	O. E. Sanford.
rlingtonanute	Coffey Neosho		9	39.8	+ 3.7		11	10	26	35	2.60		1.10	3.0	7	2	15	14		C. W. Brown.
narron	Gray		9	34.3		. 59	3	7	25	35	2.54		1.08	7.5	10 8	10	6	12		C. C. Isely. J. L. Stanley.
ldwater	Comanche	2,090	16 23	35.6		. 56	1	12	251	30	1.41	+ 0.65	0.00	2.0		10		10		. O. E. Skinner.
lumbus	Cherokee		16	30, 4	- 0.6	49	3	5	30	35		+ 1.60	0.93	2.0		14	8	9		W. R. Padley.
olidge ottonwood Falls	Chase	1,234	9	35.9		. 58	1	5 3	26	28	3.74		1.56	3.5		10	2	19		E. B. Greene. J. S. Winans.
ameil Grove	Morris	1,234 1,680	29	34.2	+ 0.3	55	19	2	26 26	26 30	3.51		1.10			12	4			W. H. Morton.
nningnam	Ford	2,513	39	33.6	+ 2.0		11	11	25 26	33	1.88	+ 1.32	0.70	2.7	13		3	15		U. S. Weather Bureau. W. Y. Miller.
inninghamodge City	Butler	1,291	11	37.5		. 59	1	3	26	24 31	3.49		0.94			8 5		20 12		Martin Musil.
llinwood	Barton	1,790 1,138	38	34.0		55 62	1 1	3 2 6	26	30	4.07	+ 2.93	1.55		12	9	5	17	ne.	Chas. Moss.
mporiaureka	Lyon Greenwood	1,079	17			. 60	4	5 3	26	29	4.77		1.40		9				ne.	Mrs. T. C. Peffer. J. McDaniel.
all River	do	925	17		+ 3.3	65	1	3	26	31	1.84		1.00							N. B. Swink.
argoredonia	Wilson	975	10			63	3	4	26	29			. 0.94	5.5	11	8	2	21	SW.	B. W. Holmes.
arden City	Finney	2,836	24	33.1	+ 1.5	51	11	12	21	† 29			0.95	7.0		13				B. F. Stocks. C. C. Raymond.
reensburg	Kiowa	2,235 1,116	6			57	29	10	26	36	2.68		1.40			8				R. M. Lawyer.
renolaoward	Elk			37.0				2 0	26 26	28	4.01		. 0.95	6.1	5 8	1 8	2	10		R. M. Lawyer. J. W. Eby. E. R. Kimzey.
ugoton	Stevens	3,100	9	32.2		. 54	11	3	23	31			. 0.93							Sheridan Ploughe.
utchinson	Reno				- 0.3 + 3.3	60	1 1	3 7	26 26	24	3.88	3 + 2.97 3 + 2.25	1.32			1	2	23	S.	F. L. Kenover.
dependence	Montgomery				+ 5.2				26	29	3.9	+ 3.08		5.	7 10	1		21		U. S. Weather Bureau
ene	Hamilton	. 3,440	3	29. €		. 57	3	7	30	32	2.2	7	. 1.00			14		1 4		N. M. Herbig. H. A. Mack.
tmore	Hodgeman	. 2,268						6		31 30		3		5 5.	0 10	) (	a 10			B. B. Anawalt.
ingmana Crosse	Rush	2,061	11	33. 4		59	11	t 4	26	34	1 3.0	9	. 1.07	7 2.1	0   8	1 1	7	1.5	9 50.	Rodney Torrey. C. H. Longstreth. H. H. Wolcott.
akin	. Kearney	2,993	23	32.2	+ 0.0	3 49	) 2	12	21	26	1.2	8 + 0.86	0.38				11 3	13		H. H. Wolcott.
arned	. Pawnee	2,090				55	3 3		26	3 20			1.30	0 4.	5 1	1 1	7a 5	a 1	Sa S.	J. J. Bowman.
eboe Roy	Coffeydo	. 990	) 4		T 4.						3.2	6	1.22	8 5.	0 1	1	) 2	11	9 80.	F. W. Schmitt.
iberal	. Seward	. 2,843	3 6	33.8	3	. 5	3 11	4	23			6	0.8			9 1				Dr. R. T. Nichols. Mrs. Nelia Poling. Ed. F. Haberlein.
acksville	. Stafford	. 2,032		33.3		8 5	7 3		26	8 2			7 1.4		0 1	1 1	5 6	1		Ed. F. Haberlein.
cPhersonadison	McPherson Greenwood	1,498	1 1	34.5	+ 1.	6 5	8 10		5 26	6 3	3		1.6	5 4.	5		40 7	70 1	7º n.	Dr. Jas. M. Moore.
arion	. Marion	. 1,310	0 2	0 35.	8 + 2.	6 5	6 1	1 1	5 20	6 2	7 4.6	8 + 3.7	3 2.3 2 0.9			0	8 1	7 1	6 S. 3 Se.	Jerry Forney. S. P. Garrison. A. P. Reece.
edicine Lodge	. Barber	1,259	9 2		2 + 2.	0 5	6 1	1 8	8 2	6 3	2 2.2	7 + 1.5	0.9		0 1		3	4 1	4 n.	A. P. Reece.
inneola	. Clark		0 1	6			** ***				3.0				0	8 1		4 1	7 8.	H. N. Kenfrew.
eosho Rapids	Lyon	1,09	2	8							3.7	5	1.3	3 3.		9 1	0	2 1	9 80.	W. H. McMullen. J. K. Barnd.
ess City	. Ness	2, 26	0 2	0		2	5		2 2	6 0	5 3.9		2 1.4 3 1.4			0	8	5 1	8 s.	H. A. Brush.
ewton	. Harvey	1,45	6 1			2 5	5 1		4 2	6 2	5 3.6	2  + 2.6	6   1.0	5 4.	2 1	3 1	0	3 1	8 8.	N. I. Farris.
swego	. Labette	89	9   1	9 39.	4 + 2.	4 6	0 1	1	3 2	6 2	9 4.3	37 + 2.4	1 1.9	0 7.	.5 1	0	6 1		2 sw.	TO T Transing
lains	. Meade	. 2,76	6	3 34.	8 + 2.	6	0 4	1	0 2	3 3	0 1.3	22 4 2 6	0.5		.0		5		0 n.	T. J. Arnold.
ratt	. Pratt		0 1	8 35. 2 30.	0 + 2.	3 5	9 1	L†	4 2 3 2 0 2 7 2 4 2 2 2 1 2 5 2 6 2	3 3	2 2.3	37 + 1.6	0 1.2	20 4	.5	9				M. J. Allen.
Richfield	. Morton	1.21	8 2	7 36.	7 + 1.	0 8	57 3	3+ -	2 2	6 3	0 4.6	01 + 2.9	14 1.3	31 5	.0	10	9		19 8.	D. M. Adams. John J. Miller.
anta Fe	. Haskell	2,95	0	32.	6	1	1 1	5 1	1 2	3 3	34 1.6 30 4.8	22 1 3 5	0.6		.0	8 9	10	4	12 nw.	A. Y. Buckles.
edan	Chautauqua		0 1	8 38. 6 36.	6 + 2 8 + 3	6	57	3	5 2	6 3	31 4.	01 + 2.3	59 1.2	20 5	.5	8			23 n.	M. A. Webb.
Coronto		3,05	0 2	2 32.	5 - 0	1	57	2 1	1 2	23 3	30 1.	78 + 1.2	24 0.7	70 4	.0	6	12	6 8	13 nw	T. W. Marshall.
Walnut	Crawford	94	0 1	1 38.	5 - 0. 7 + 2. 4 + 1.	9 !	58	1 1	1 2	26	27 3.	61 + 1.	73 1.9		.5	3 10	8 1	8 .	18 nw.	R. C. Harlan. E. O. G. Kellev.
Wellington	Sumner	1,22	5 1	7 36. 26 35. 19 36.	4 1	2	57	3	6 2	26 26 26 26	30 1. 27 3. 29 3. 21 3. 26 4. 32 3.	25 + 2. 93 + 3. 03 + 2. 82 + 2.	15 1.6	60 4	.9	17	7	5	19 8.	E. O. G. Kelley. U. S. Weather Bure
Wichita Winfield	Sedgwick Cowley		4 1	19 36.	4 + 1 2 + 1 4 + 3	9	56	1†	6 2	26	26 4.	03 + 2.	01 1.	65 6	.0	8		2	21	M. B. Light.
Yates Center		1,00	19 1	34 36.	4 4 3	4 1	62	4	3 2	26 1	32 3.	82 + 2.	53 1.0	U6   5	.5	10	76	4b	18b 3.	J. W. Tipton.

TABLE 1.—Climatological data for December, 1913. District No. 7—Continued.

			years.	Temp	erature	, in d	legre	es Fah	renh	eit.	Prec	pitation,	, in inc	hes.	days		Sky.		direc-	
Stations.	Countles.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	unmelt	Number of rainy days 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Oklahoma.																				
da	Tillman Blaine Texas Logan Texas Roger Mills Carter Leflore Alfalfa Kingfisher Klowa Hughes Texas	900	5 8 3 19 111 5 16 6 11 11 11 11 11 11 11 11 11 11 11 1	42.7 40.4 40.4 40.4 40.4 40.4 40.4 40.4 40	+ 1.4 - 1.4 - 1.4 + 2.4 - 2.7 + 0.1 - 0.3 + 0.1 + 2.2 - 1.3 - 0.4 + 2.7 + 0.9	57 60 59 65 59 65 58 60 61 65 58 65 58 65 65 68 60 60 64 68 61 65 68 60 60 60 60 60 60 60 60 60 60 60 60 60	1 4 15 1 10 1 2 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1	19 11 7 7 9 15 15 21 18 4 9 10 223 3 14 14 1-21 13 18 17 4 18 18 17 7 7 7 17 17 17 11 15 15 15 15 15 15 15 15 15 15 15 15	26 23 26 26 28 23 23 23 22 26 26 23 23 24 23 9 9 26 23 26 23 26 23 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 25 26 26 26 26 26 26 26 26 26 26 26 26 26	30 31 35 29 30 38 36 30 27 30 27 30 33 36 30 27 30 31 27 30 32 37 31 29 30 37 31 29 37 37 31 37 37 37 37 37 37 37 37 37 37 37 37 37	4.43 6.13 2.10 5.00 3.49 5.00 3.75 6.18 5.11 4.09 3.03 3.75 5.57 4.47 4.58 5.57 4.49 9.30 9.30 9.30 9.30 9.30 9.30 9.30 9.3		0.82 2.33 0.70 1.45 1.10 2.40 2.40 1.15 2.07 2.05 2.14 1.19 2.05 2.14 1.19 1.42 2.07 1.42 1.16 1.68 1.68 1.1	4.0 3.0 5.0 4.0 7.5 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	10 9 13 11 12 10 11 8 6 6 8 9 10 11 17 7 12 9 11 6 8 8 8 7 7 8 8 11 11 11 11 11 11 11 11 11 11 11 11	4 7 5 10	7 2° 2 3 1 10 9 0 0 0 15 11 4 17 13 14 0	15 10° 22 22 19 11 12 15 21 7 10 11 12 21	n. n. w. s. s. e. n. n. s. se. n. se. n.	H. P. Sugg. U. S. Weather Bureau S. A. Stech. G. D. Teeter. P. H. Gallion. H. T. Nisbett. Dr. A. P. Owens. Elmer L. Fickel. Dr. R. R. Anderson. Mrs. Frank Rush. Thomas Purcell. Hiram C. Tuttle. Squire Humble. Anna W. O'Neill. Chas. C. Breed. J. P. Stutzman. Nelson Houk. J. T. Black. Rose E. Walker. Uri B. Worcester. A. W. Hanes. R. Uhl Brown. C. W. Prier. John T. Welch. B. B. Bradley. O. P. Ruth. S. W. Black. S. E. Snyder. A. L. Mordt. E. G. Commons. C. H. Heald. H. S. Bliss. E. C. Seegers. Mrs. M. C. Parks. J. M. Pate. Eula L. Rutherford. H. N. Kelly. D. A. H. Dowie. D. P.
Iugo Iuriey dabel efferson Centon Lingfisher awton Awtonka Lake	Choctaw Cimarron McCurtain Grant Cimarron Kingfisher Comanche		5 4 19 12 16	46.7 37.2 31.0 40.8	+ 0.4 - 4.5 + 1.8	65 49 69 57 52 63	5 11† 1 1† 11† 11† 12 1	16 2 24 12 6 18 10	25 23 26 26 23 26 23 26 23	33 34 34 29 36 33	6.32 0.69 6.80 3.45 4.20 4.04 5.61 5.21	+ 2.63 + 3.86 + 3.21	2.00 0.30 2.10 1.15 1.91 1.73 1.32 1.07	0.5 6.9 T. 3.0 12.5 3.5 3.7 4.0	9 3 9 10 10 12 10	9 11 12 7 11 9 13 8	6 12 3 9 6 1 8	16 8 16 15 11 16 17 15	e. nw. e. s. n. n. ne.	Dr. A. H. Davis. Dr. C. W. Meyers. W. S. Ray. T. F. Beck. Ralph H. Guy. J. C. Cross. Frank M. Head. W. S. Kesler.
Go Alester fangum farlow feeker fuskogee (1) fuskogee (2) futual feeker feeker fuskogee (2) futual feeker futual f	Pittsburg Greer Stephens Lincoln Muskogee do Woodward Caddo Kay Muskogee	602 614 1,500 1,149	16 20 12 14 14 5 7 15	39.8 40.5 42.2 42.4 38.2 39.6	- 2.2 + 0.2 + 2.3 + 2.3	65 65 68 59 58	1 21 12 1 1 1 1 11 12 1	25 6 13 18 19 20 9 11	81 23 24 26 26 26 25 23 26	34 27 27 28 43 30	3. 90 3. 91 5. 55 8. 29 5. 67 4. 95 2. 68 4. 31 2. 81 4. 71	+ 1.45 + 2.93 + 4.61 + 6.96 + 3.05	0.91 1.24 1.50 2.50 1.36 1.40 1.00 1.69 0.90 0.86	3.0 8.0 4.0 6.0 5.2 4.0 5.0 5.5 6.0 3.5	11 6 7 16 14 10 5 6 5 13	11 10 12 4 10 5 17 12 6 8	0 2 1 0 3 3 3 5 3	20 19 18 27 18 23 11 14 22 21	n. ne. s. n. e. n. s. se. se.	Wm. Noble. F. D. Dodson. Wm. B. Anthony. Dr. J. H. Baugh. U. S. Weather Bureat J. Harry Randall. Thos. Martin. R. N. Schooling. H. P. Albright & Co. J. M. Cantrel.
oakwood )likeene. )likene. )kiahoma )kiahoma )kimulgee. oauls Valley oawhuska erry erry Rankin Savia. sac and Fox Agency shawnee.	Blaine Okfuskee. Oklahoma. Oklahoma Okmulgee. Garvin. Osage. Noble. Roger Mills. Johnston. Lincoln. Pottawatomie.	1, 194 1, 247 752 880 918 920 2, 200 796 900 1, 041	9 10 19 11	42.0 39.4 43.4 42.3 38.9 40.0 35.2 41.8 41.1	+ 0.8 + 0.7 + 0.7 + 1.9	57 68 59 69 64 62 57 64 62	12 1† 3 1 12 1 1 19 1 1 1	20 17 23 17 9 16 11 20 18	24 <sup>1</sup> 26 10 <sup>1</sup> 23 26 23 25 26 26 26 26	30 25 35 33 45 45 430 32 32 28 29	3. 15 3. 94 5. 42 3. 38 4. 21 5. 25 3. 68 4. 45 2. 92 4. 83 4. 84 5. 50	+ 1.64 + 3.96 + 2.25 + 3.38 + 2.86 + 4.46		6.0 4.6 6.0 3.9 5.0 4.0 3.5 10.0 3.2 6.0 5.0			7 7 3 5 5 13 8 9 3 3 11 6	13 12 21 18 19 8 14 10 14 20 17 18	s. s. n. s. n. nw.	Dr. E. E. Lawson. Dr. L. H. Murdoch. S. F. Smith. U. S. Weather Burea: J. L. Maynard. A. M. Foss. R. C. Block. S. E. Laird. Roy Kagay. R. G. Guptill. Thos. Myers. Mrs. Kate Chatman.
stillwater rahlequah rulsa rinita Wagoner Waukomis Waurika Weatherford Webbers Falls Whiteagle Woodward	Cherokee. Tulsa. Craig. Wagoner. Garfield. Jefferson Custer. Muskogee	988 1,639 479 945	24 9 16 16 16 11 14 9	40.6 40.5 40.4 38.8 42.7 37.2 42.6 39.2	+ 1.9 + 0.4 - 1.2 + 2.4	66 62 62 64 59 60 58 68 63	1 2 1 3 1 1 1 1† 12 1 1 1 1 1 1	16 14 18 13 24 11 23 14 3	26 26 26 23 26 23 26 23 26 23 26	27 29 31 28 27 † 33 † 34	4.37 5.62 5.15 5.15 3.54 4.53 4.02		1. 22 1. 46 1. 10	1.5 2.3 7.2 5.7 5.0 3.0 2.0 6.0 0 3.5 5.5	14 10 8 9 10 10 8 8	9 7 6	3 8 0 1 8 15 3 7 19 4 7 0	24 17 20 21 16 10 18 15 10 18 15 22	n. nw. n. ne. e. s. nw.	E. Tourtellotte. G. P. Hardy. Dr. H. M. Hutchinso R. E. Moss. Moro Hatfield. R. C. Shades. B. A. Swindler. Eugene Forbes. B. D. Boulineau. Jessie W. Smith. Mrs. Ida C. Baird. James J. Bruton.
Missouri.	Maries		22	40.0	+ 5.7	72	4	17	9	1 35	1.88	- 0.39	0.60	9.0	6	64	70	15	· g.	A. J. Wofford.
Birchtree ape Girardeau ardwell aruthersville assville bean Doniphan Pruit City Jano Goodland Hollister ronton ackson oplin Koshkonong	Shannon Cape Girardeau Dunklin Pemisot Barry McDonald Ripley Reynolds Dent Iron Taney Iron Cape Girardeau Jasper.	1,200 346 440 1,150 900 850 925	21 6 3 24 3 15 10 1	38.8 44.7 44.0 38.1 40.6 40.0 39.0 38.3 41.3 39.1 41.4 43.6	+ 4.3 + 2.7 + 2.6	63 70 73 63 65 67 60 67 61 65 62 69 60	18 1 2 1 1 1 2 2 2 2 2 2 2 2 1 4 1	18 19 8 12 18 20 11 13 18 20 21	31 9 9 27 26 9 8 9 9 9 9 8 8	31 35 36 36 43 34 27 36 39 34 36 31 † 26	1.95 2.11 2.01 1.91 3.05 3.33 2.87 2.18 2.02 1.50 3.70 2.37 1.19 3.00	- 0.58 - 2.31 + 1.29 + 0.34 + 0.30 - 0.64 - 2.09	0. 90 0. 80 1. 10 0. 61 1. 03 1. 33 1. 35 1. 20 0. 68 0. 70 2. 25 0. 33 1. 40 1. 00	12.0 3.0 2.0 3.5 12.5 13.0 5.0 15.5 9.4 8.5 6.0 9.5 6.0 9.0	6 9 4 8 6 10 8 6 6 7 6 9 8 8	11 10 15 11 13 70 11 13 10 12 10 9	2 3 2* 4 6	18 18 9 16 12	n. s. n. n. s. e. nw. ne. nw. n. se. nw. n.	V. H. Kirkendall. D. L. Albert. E. M. Perry. H. E. Averill. Mrs. Zuma Bloomer. H. E. Dean. W. W. Martin. R. C. Walton. A. C. Leech. F. M. Adams. W. P. Chapmann. W. H. Delano. L. M. Bean. Joplin High School. J. W. Hitt.

Table 1.—Climatological data for December, 1913. District No. 7—Continued.

			year	Temp	erature	, in	degre	es Fal	hreni	neit.	Pre	cipitation	i, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy d	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	vind n.	Observers.
Missouri-Continued.																				
Amar	Barton Bollinger	964 420	32	39. 2	+ 3.8	60 70	11	21 17	9	30 42	2.69 1.35	+ 0.67	0.95	4.0 5.0	6 2	7 7 8	0 10	24 14	sw. nw.	E. H. Adams. A. F. Hendricks.
dountaingrove	Wright	1,490	22 15	38.2	+ 2.5 + 3.3	57	11	17	9	30	2.19	+ 0.03	0.85	8.0	8	8	3	20	nw.	Mo. Fruit Exp. Station.
fount Vernon	Lawrence Newton	1,480	36	39.2	+2.3 + 3.1	66	11	20 13	9† 26	32	2.33	-0.35 + 0.75	1.00	7.0	5 9	8°	10	21	SW.	J. R. White & Son. W. O. Buck.
ew Madrid	New Madrid	285 793	20		+ 4.8	60		19	****		1.99	- 2.34	0.40	10.5	11 6	8 7	1 6	22 18	n. nw.	Miss Josie Smith. E. E. Steines.
akfield	Franklin	1, 139	22 33	38.9	+ 5.5	65	1 1	17	8† 25 25	31	1.59	- 0.62 - 0.80	0.71	7.0	4	8 7	7	16	W.	Prof. Elmo. G. Harris.
pringfield	Greene	1,350	27	38.5	+ 2.9	56	1	20	25	24	2.71	+ 0.04	1.40	8.2	9	7	4	20	80.	U. S. Weather Bureau.
Kentucky.																				
landville	Baliard	445	32	41.4	+ 4.6	67	1	20	9	25	1.63	- 2.32	0.65	4.5	7	11	2	18	ne.	E. W. Horr.
Tennessee.																				1.78
olivar	Hardeman Haywood		30	41.2	+ 0.6	67	2 2	19 20	91	31	3.05	- 1.28	0.84	5.0 2.5	8 9	13 13	0	14	n. nw.	Miss Mary A. Smith. Robert Y. Moses.
ovington	Tipton	311	30	42.0	+ 0.0	66	2	21	9	27 29	2.10	- 2.56 - 1.76 - 2.53	0.90	2.0	8 5	13 16	0	18	n. n.	James S. Ruffin.
yersburg	Dyer Madison	310 450	23	42.3	+2.8 + 1.2	68	1	20 17 16 28 18 18	9	35	2.55 2.31	- 1.76	0.90	6.0	9	10	1 13	14 8	ш.	Miss Martha A. Sinclair. Shelby A. Robert.
enton	Obion	325	11	42.0	+ 1.2 + 2.3	69	2	16	9	34	1.41	- 4.17	0.50	4.0	8	10	4 5	17	8.	Shelby A. Robert. George S. Martin.
lemphis	ShelbyGibson	409 440	42 31	40,0	+1.5 + 1.0	68 67 69	2 2†	18	91	21 34	1.69	- 2.69 - 0.50	0.48	3.5	9	9	2	17 18	ne. n.	U. S. Weather Bureau. Orlando F. Cantwell.
renton	do	345	33	42.0	+ 2.4	69	5	18	9 8 9† 9	36	1.35	- 0.50 - 3.05 - 2.71	0.54	2.0	5 7	13	3 6	15	ne.	F. L. Dennison.
nion City	Obion	360	18	41.6	+ 2.0	68	1	19	9	31	1.59	- 2.71	0.59	1.0	1	10	0	15	n.	J. R. Olivar.
Arkansas.																				The second second
mity	Clark	250	21	43. 2	+0.1	67	1	22	27	32	3.64	- 0.23	1.26	0	9					J. W. Campbell.
rkadelphiarkansas City	Desha	250 145	7 28								2.66 3.77	- 0.52	0.79	0	9 7					F. J. Carpenter. W. C. Blundell.
atesville	Independence	271	15	******	******	****	****				3. 22	- 0.39	0.86	2.0	13			***		Lelia I. Teter.
ee Branch	Van Buren		22 8	43.3	0	73	1	21	9	33	3.05	- 0.43	1.10	2.0	11	6	5	20 22		J. E. Scanlan.
entonvilleergman	Benton	1,303 1,324	15		+1.5 + 3.6	59 66	1	17 19	26 27	29 30	3.44	+0.68 + 1.51	1.49	6.4	14	8	3 4	19	e. se.	U. S. Weather Bureau. John T. Maxey.
ack Rock	Lawrence	259	12								1.89	- 1.53	0.97	4.0	9					S. J. Howe.
rinkley	Monroe	226 361	23 10	40.1	+ 0.8	72	1	21	9	38	2.11 2.08	- 2.45	0.60	T. 2.0	7 4	10	8	13	n.	H. L. D. Whitson. J. W. Wray.
amden	Ouachita	158	28	46.6		76	1	20	9	39	2.51	- 2.03	0.59	0	10					R. H. Quarterman.
enterpoint	Howard Monroe	470 171	14	45.6	+ 0.3	68	1	24	26	31	4.09 1.98	- 0.40	1.39	T. T.	8	9	5	17	е.	J. M. Huddleston. Mrs. B. E. Bishop.
onway	Faulkner	309	30	43.8	+ 1.4	67	1	23	9	33	3.03	- 0.87	0.93	1.0	12	9	4	18	nw.	G. H. Burr.
orningardanelle	Clay Yell	293 330	22 28	44.6		70	1	23	9	32ª	2.64 3.44	-0.90 + 0.31	0.76 1.82	4.7	11 9	8	3	20	8.	Jacon Brobst. A. Bernard.
odd City	Marion	1,175	32		+ 0.5	63	i	16	27	35 e	4.37	+ 0.31 + 1.37	1.50	8.0	9				n.	Neal Dodd.
umasutton	Desha Madison		10	38 6	+ 0.8	69	3	15	26	35	3.15 5.10		0.70 3.11	4.0	8	17	12	21	8.	Lawrence Waterman. J. M. Ricketts.
ldorado	Union	265	10	46.0		71	1	24 22	9	34	2.52		0.82	0	6					Jeff J. Babb.
ngland	Carroll	229 1,465	6		+ 9.1	70 67	1	22 16	9	30 35	2.56 3.85	1 1 60	0.80	2.0 12.0	9	5	6	20	ne.	J. C. Chenault. George W. Nichoalds.
ureka Springs	Washington		26	40.6	+ 2.1 + 1.2	65	1	20 23	27 26	38	4.88	+1.68 + 2.07	1.70	6.0	14	6	6	19	ne.	University of Arkansas.
ordyceort Smith	Dallas		32	47.4	+ 0.7	70	1	23	9	33	2.25		0.60	0	6	12	7	18 23	S.	J. B. Atkinson.
ulton	Sebastian Hempstead	481 264	28		+ 0.7	65	1	25	26	23	4.79	+ 1.91 + 0.76	1.80	5.4	13	1		20	е.	U. S. Weather Bureau. B. C. Logan.
eorgetown	White	200	2 16								2.37		0.63	1.0	10					Wm. N. Harris.
ardyelena	Sharp	643 182	42		+2.8 + 1.8		2†	20 22	9	26	2.83 1.73	- 0.46 - 3.31	1.35	16.6	12 8	4	8	19	ne.	C. A. Caywood. W. Schwarz.
ot Springs	Garland	600	21	46.6	+ 2.2	72	4	28	8	28	3.96	- 0.42	1.15	T.	11	8	12	11	nw.	Army and Navy Gen. He
nesboro	Union Craighead	85 345	7 16	47.0	+ 2.9	74 70	1 1 1	25 20	9†	35 34	4.07	- 1.86	1.36	4.0	9 5	8	15 8	14 15	nw.	C. A. Berry. Benedictine Sisters.
inction	Union		20	45.21	- 0.4	63	21	24	9	25 1										J. A. Lowderback.
ake Farm	Jefferson Lafayette	195 262	6 10	46.2		70 72	1†	28 24 27 22	8 26	33	2.21 2.96		0.70	0	8	8	1	22		G. L. Spellman. F. W. Youmans.
ittle Rock	Pulaski	357	34	44.8	+1.3	68	1	27	26 26	22	2.96	- 1.28 + 1.43	0.68	1.2	12	7	5	19	e.	U. S. Weather Bureau.
uthervillealvern	Johnson	775 277	15 °21	42.8	+1.9 + 1.3	67 70	1 1	22	9+	33	5.11 3.76	+ 1.43	2.14	0.5 T.	12 8	3	17	ш	sw.	W. R. Hentschel. Miss L. C. Smith.
ammoth Spring	Fulton	512	8	41.2		62	2	19	9	38a	1.64	- 0.10	0.50	6.5	8	5	11	15		F. Wallick.
enaewport	Polk Jackson	1,284 231	23 28	41.8	-0.9 + 2.2	68 67	1	21	26 9	31	5.24 2.64	+ 1.35	2.44	3.0	12 12	10	10	11	W.	V. W. St. John. Willey W. McMinn.
ine Bluff	Jefferson	215	24	44.6	- 0.7	69	1+	22 19 21 23 23	91	36 35	2.04	- 0.93 - 2.63	0.50	0	9					J. H. Hudson.
ocahontas	Randolph		20	43.2	+4.9	65	2	20	9	35	2.12	-1.41	0.55	3.0	8	9	6	16		Benedictine Sisters.
ondortland	Benton	1,250 122	15	47.7	+ 1.3	63 77	1	14 24	26 10	36 40	3.46	+ 1.33	1.32	5.0	8 9	6	3	22	SW.	A. F. Stevens, T. A. Corson,
rescott	Nevada	327	19		+ 0.6	71	1	22	9†	37	3.04	- 0.64 - 0.29	0.74	0	7					Mrs. G. Cummings.
son	Cleveland Benton	243 1,385	12 23	39.6	+ 1.6	63	1	19	9†	34	2.43 3.64	-0.29 + 1.52	0.82 1.63	8.5	6 10	6	4	21	se.	L. E. Tisdale. Carl A. Starck.
eridan	Grant		1						91											S. E. Ashcraft.
oringbankuttgart	Miller	182 228	5 26	45 9	+ 1.0	69	2†	22	9	30	4.31 3.01	_ 1.55	1.15	T.	12	10	7	14	n.	G. Field. H. A. Buerkle.
ibiaco	Logan	1,050	16	41.3d	-0.2	67	1	22	9	314	5.03	-1.55 + 1.63	2.00	T.	8				e.	New Subiaco Abbey.
vainexarkana	Newton	2,300 332	3 26	37.31	- 1.5 + 2.9	63	1	19 24	8† 26	26 f	5.89 3.96	******	2.83	8.7	10	7	3	21	n.	George Paxton. H. S. Brashear.
arren	Bradley	304	18	47.6	+ 2.9	72 73	1	24	9†	36	2.30	+1.33 $-2.91$	0.65	0	8					R. R. Lusk.
hitecliffsiggs	Little River	206	9		+ 1.1.	70	1	18	9	37	2.47	- 0.13	1.07	T.	6	6	11	14	nw.	F. B. Lane. S. D. Jester.
ynne	Cross	250	6	45.0	T 1.1.	70	2	20	9	33	1.63	- 0.13	0.47	2.5	9			1.4		John Seals.
Mississippi.	Charles			47.0				-		-	0.00		0.55	_						P.W.C.
nguillaustin	Sharkey Tunica	107 200	17	47.6 45.2	+ 1.4 + 0.4	74 70	1 1	23 20	9	36 35	3.36 2.53	- 3.12 - 1.88	0.95	T. 1.2	8	9	7.7	15 15	nw. ne.	E. W. Cook. H. J. Irvine.
atesville	Panola	230	26	44.8	+ 0.4	74	2	20	9†	40	2.81	- 1.88	0.89	2.0	-8	15	1	15	n.	J. M. Cox. J. P. Havens.
	AND DESCRIPTION OF THE PARTY OF		. 4																	

TABLE 1.—Climatological data for December, 1913. District No. 7—Continued.

			years	Temp	erature	, in (	legre	es Fah	renh	eit.	Prec	ipitation	, in in	ches.	days,	1	Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	ainy or m	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind d	Observers.
Mississippi-Contd.																				
Clarksdale Cleveland Corinth Crenshaw Duck Hill Edwards Fayette Greenville Greenwood Grenada Hernando Helly Springs Koselusko Malone Malone Moorhead Natchez Pont dibson Rosedale Shoccoe Suffolk Tchula Utica	Alcorn Panola Montgomery Hinds Jefferson Washington Leflore Grenada De Soto. Marshall Attala Marshall Sunflower Adams. Pontotoc Claiborne Bolivar Madison Franklin Holmes Hinds. Warren	177 160 470 187 2222 270 126 140 194 391 600 430 117 206 475 116 143 130 287 247	6 1 25 4 14 26 12 26 13 4 25 26 23 4 25 26 23 4 25 26 21 21 21 22 26 26 21 21 21 21 21 21 21 21 21 21 21 21 21	46. 4 48. 7 48. 5 46. 2 46. 2 44. 8 44. 0 46. 0 45. 7 49. 5 45. 6 47. 4 48. 2 50. 1 47. 6 49. 2 49. 9	0 + 0.6 + 0.5	71 70 73 75 75 72 72 72 68 73 71 77 74 75 72 73 75 74 75 76 77 77 77 77 77 77 77 77 77 77 77 77	2 1 1 1 1 1 1 1 1 1 1 1 1 2 2 1 1 2 1 1 2 2 1 2	22 20 26 26 21 24 22 23 24 24 24 26 20 20 22 23 23 24 22 23 24 22 23 24 24 22 23 24 24 24 24 24 24 24 24 24 24 24 24 24	9† 	35 36 33 40 33 37 30 29 38 41 35 34 35 36 34 30	4.04 1.10 1.61 2.67 3.43 2.67 4.25 3.31 3.47 3.04 2.98 2.90 4.12	- 2.40 - 2.36 - 2.32 + 0.07 - 1.75 - 3.77 - 2.46 - 0.89 - 1.88 - 1.14 - 2.03 - 1.50 - 0.81	0. 47 1. 21 0. 84 0. 80 0. 81 2. 16 1. 14 0. 30 0. 45 0. 86 0. 83 1. 25 1. 32 1. 05 0. 65 0. 60 1. 07 2. 29 1. 00 0. 89	T. 3.3 T. 0 0 0 0 T. 3.0 6.0 T. T. T. 8.0 0 T. T. T. 0 0 T. T. 0 0 T. T. 0 0 T. T. 0 0 T. T. 0 T	10 4 9 5 8 6 8 10 7 9 9 9 11 19 8 5 5 8 8 8 10 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	9 14 7 10 9 8 10 12 12 11 11 8 5 10 6 8 13 9 7	1 0 12 11 12 4 -5 3 10 2 11 3 5 4 8	21 17 13 10 10 10 19 16 13 16 10 22 18 14 14	n. n. n. n. n. n. n. ne. e. n. se. n. nw. ne. nw. nw.	A. C. Tuttle. W. W. Boone. M. A. Candler. Rodgers Woollard. W. H. Eskridge. E. F. Farr. T. L. Darden. M. G. Harbison. J. H. Stephen. W. F. Hallam. W. F. Hallam. W. F. Wood. L. B. Mosby. E. L. Lucas. M. J. Wilkins. H. S. Gove. Catharine E. Garrit. Dr. C. W. Bolton. H. H. Crisler. T. J. Murray. J. C. Pitchford. Prof. Geo. H. Kent. Dr. M. P. Winkler. Dr. J. B. Dudley. U. S. Weather Bureau.
Water Valley Woodville Yazoo City	Wilkinson	300 560 116	24 20 19	50.9	+ 0.2 0.0 - 0.3	73 77 76	1 1 1	22 28 22	9 9	38 29 38	3.70 3.40		1. 15 0. 76	4.0	7	10 21 7	5 5	15 5 19	sw. n. nw.	Miss Loula Erikson. James E. Lee. W. H. Courts.
Louisiana.  A bheville	Rapides Tangipahoa Claiborne St. Mary East Baton Rouge Ascension Plaquemines Ouachita. Cameron Rapides. W. Baton Rouge East Feliciana. Morehouse St. Tammany Winn Ascension	33 177 10 302 93 44 30 36 222 9 6 192 45 194 82 4	15 16 1 25 25 12 22 25 9 25 25 25 25 25 25 25 25 25 25 25 25 25	48. 5 5. 4 4. 2 4. 5. 5. 6 5. 5. 4 5. 6 5. 6 5. 6 5. 6	0.0 + 2.4 - 0.5 - 2.9 + 1.1 + 0.7 - 7.0 - 0.2 + 1.5 - 1.6 + 0.9 4 - 0.3 - 0.8 - 3.5 + 0.7 + 1.0 - 1.8 - 1.8	81 76 78 81 75 80 80 78 79 74 80 76 73 78	1 1 2 4 2 3 1 5 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1	29 29 41 23 25 25 28 29 25 24 33 30 22 29 25 25 33 36 24 25 29 30 30 31 27 29 25 31 31 31 31 31 31 31 31 31 31 31 31 31	9 26 9 9 8 9 9 8 9 20 31 27 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	300 317 3532 200 3440 3223 333 355 3734 355 353 303 322 303 344 355 384 365 384 385 385 387 387 387 387 387 387 387 387	7. 61 3. 13 3. 15 4. 05 2. 90 2. 90 2. 83 3. 53 3. 53 3. 2. 70 3. 22 5. 92 2. 83 3. 53 3. 2. 70 5. 92 2. 83 3. 53 3. 2. 70 5. 92 5. 92 6. 3. 88 1. 3. 15 1.	- 3, 75 - 1, 80 + 0, 42 - 1, 07 - 1, 45 + 1, 41 - 1, 25 - 1, 60 - 1, 68 - 1, 39 - 1, 13 - 2, 03 - 0, 62 - 1, 23 - 0, 95 - 0, 89 - 1, 29	. 0.90 1.83 1.65 0.95 1.00 0.96 1.00 0.85 0.64 2.00 1.02 1.18 1.20 1.60 1.25 1.60 1.25 1.02	000000000000000000000000000000000000000	6 5 5 8 6 6 100 5 5 100 9 8 8 4 4 4 8 8 7 7 7 7 4 4 4 8 8 2 2 4 4 6 6 9 9 12 7 7 6 6 6 8 8 2 1 7 7 6 6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	7 8 9 15 14 13 18 15 7 9 12 6 6 11 11 17 14 5 100 13 12 100 17 7 8 12 100 2 2 4 15 8	8 7 5 0 1 5 0 3 0 0	8 12 16 16 8 9 15 16 9 20 11 5 12 12 19 23 18 16 29 24 16	n. ne. n. n. ne. n. ne. n. ne. n. ne. n. n. ne. n. n. ne. n. n. ne. n. n. se. n. n. se. n. sw. ne. n. sw. ne.	Hon. C. J. Edwards. Miss Nellie Graham, Miss L. M. Wontz. W. L. Anglin. J. N. Pharr & Sons. Elmo M. Bott. C. S. McFarland. Graham Myers. North La. Exp. Station. Adolph Bruckert. Walter I. Tanner. Cinclare Central Factory. John A. White. J. B. Reily. Cecile P. Champagne. J. P. Lucas. John F. Park. Picard & Geismer (Ltd.). W. P. Chandler. White Lake Land Co. Miss J. M. Bonney. Ogden C. Doremus. G. Foster Prevost. St. Charles College. C. C. Carr. Prof. John M. Foote. Capt. E. B. Trotman. J. F. Buch. P. M. Donley. J. J. Davidson. George Boudreaux. Miss L. J. Nunemacher. Hon. H. C. Warmoth. Dr. E. A. Crawford. Mrs. Bettie M. Dennis. Charles B. McNeill. Miss Ethel Fort. Kathryn Key. Virgil E. Kinsey. Leon Godchaux Co. (Ltd. Noyes R. Pendary. Mrs. John A. Gebert.
New Orleans (1) New Orleans (2) Opelouss. Pearl River Plain Dealing Reserve Richland Plantation Robeline Ruston St. Francisville St. Gabriel Shriever Somth Univ. Farm Sugartown Sugartown Walker	do St. Landry. St. Charles. St. Tammany Bossier. Acadia. St. John Baptist Rapides. Nachitoches. Lincoln West Felicians. Iberville Terrebonne Caddo. Avoyelles Jefferson Calcasieu. Madison	51 18 83 29 268 44 147 312 115 17 249 42	42 25 21 21 21 21 12 11 17 18 10 21 42 7	55. 0 55. 2 49. 8 46. 9 53. 2 56. 0 50. 4 50. 3 48. 0 53. 2 53. 2 55. 0 47. 8	+ 0.6 + 0.7 - 1.4 + 0.1 + 0.6 + 3.2 + 3.7 0.0 - 1.1	74 79 81 84 82 89 79 73 81 78 90 72	1 2 2 3 3 12 2 3 11 1 1 2	36 31 28 24 29 30 28 22 25 28 30 28	9 10 9 10 9 10 8 9 9 26	22 43 31 35 30 46 31 51 36 30 32 4 24 24	1. 78 2. 14 3. 89 2. 00 1. 86 3. 74 4. 31 1. 30 2. 50 3. 75 1. 96 3. 28 3. 00 2. 50 4. 28 3. 25 4. 28 4. 16 4. 16 3. 03	- 2.68 - 2.69 - 1.08 - 1.40 - 0.52 - 3.38 - 0.12 - 2.68	1. 04 1. 98 0. 70 1. 10 0. 83 1. 10 0. 94 1. 08 1. 58 0. 74 1. 14 1. 15 1. 13 1. 14 1. 15 1. 15		7 8 8 7 7 5 111 9 9 8 8 6 6 6 8 6 6 6 8 6 6 6 6 6 6 6 6	8 16 11 12 13 13 5 6 6 10 5	0 0 0 19 3 2 3 11 0 6 9 9 0 8 15	18 21 20 166 23 19 4 12 18 166 7 18 20 166 25 13 11	e. n. n. ne. n. n. ne. ne. ne. n. ne. ne	Mrs. John A. Gebet. U. S. Weather Bureau. Sugar Experiment Station Andrew Moresi. R. E. Boyce. Geo. F. Bancks. Leon Sanders. A. P. McNeil. Leon Godchaux Co. (Ltd., A. B. Pendleton. Anna R. McCook. Andor M. Larson. G. W. Newman. Capt. J. B. Murphy. William H. Gautreaux. U. S. Weather Bureau. Cassius T. Leigh. F. L. St. Martin. G. W. Richardson. Neal T. Halt. Prof. L. W. Wilkinson.

<sup>a</sup>, <sup>b</sup>, <sup>c</sup>, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.10 inch rain or melted snow.

Table 2.—Daily precipitation for December, 1913. District No. 7, Lower Mississippi Valley.

Stations.	Watershed.		-					1			1		-				of mo		-		-	-	-	1	-		1 1					_	7
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	.18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
Colorado.																																	1
ena Vista	Arkansas	.75			. 10													T.													T.		0.
han	Big Sandy	. 25 T.	10	1.00	. 18	. 75	0.07													.08					.05		. 10	. 03					2.
non Citylorado Springs	Arkansas Fountain	. 48	.04	. 32	1.03	. 61	.04																		.00		.02						2.
orado Springs pple Creek	Oil Creek	.01	.08	. 15	1.30	. 82																70			20	••••	. 35						5.
chara Camps	Cucharas Big Sandy	. 65	. 10	.00	1. 09	1. 20	.90											.02							00001		. 31	****					00
rview	St. Charles	. 43		*		4. 50	40							. 07		• • • •		. 16	. 29	Tr.					. 64	T.	16	. 59					6 5
emont Experi- nent Station.	Fountain		.84	. 20			. 49							-			• • • • •			1		••••	****	. 02		1.	. 10	••••	****	****	****		10
rfield	Little Ark	.68	*	. 17	.91	.14	1 20													. 10						• • • •	*	. 04					2
mpsrmit Lake	Big Sandy Grape Creek.	. 52		.37		. 82	. 20							****						. 47						• • • • •		. 45					3
ehne (near)	Purgatoire	Т.	*		1.10	*	4.00											T.				T.	.10					T.				****	1 2
lly Junta	Arkansas	. 24	.38	. 20	2,00	.09	.01													.02					.05			. 21					2
ke Moraine	Fountain	. 68	.38	. 30	2. 50	2. 23														T.				. 15	. 19		. 27	. 07				****	6
mars Animas	Arkansas	. 30	. 00	1. 16	. 40	.20										• • • • •		***		1.	• • • •		.02			••••		. 40					3
Veta Pass	Cucharas	. 30		· · · ·	1.50	. 72	. 18						T.							T.	T.											****	2
adville mon (near)	Arkansas Big Sandy	. 34	.01	. 15	.88	.40												. 10		- 20											.02	.09	1
drid	Purgatoire	0.5		35	0.5	27												. 04		.01		.07	****	.07			.06			90	14	.15	1
rshall Pass	Arkansas	. 10	. 44	. 12	1.00	. 95		. 25		. 22		. 17						****				. 05						. 00		. 44	. 19	. 10	. 2
nument	Fountain	. 77	. 27				2.75													.17							25						4
rth Lake	Purgatoire Arkansas	. 01	.09	.07	. 84	. 66	. 33											.00		T.	****	****	****	.01	.04		.05			T.	****		1
cky Ford (near)	do			. 44	1. 75															.06				70				. 13					1 2
Elmolida.	Chalk Creek. Arkansas	1, 20		. 55	. 83	. 32	****	****		****	****		****		****	****		. 03					****	T.	****							T.	2 2
newall	Purgatoire	. 16	.06	. 12	1. 25	.36	. 14											T.				T.	. 02				T.	T.					. 2
nidado Buttes	do Arkansas	.01	. 15	. 16	2.00	. 62	. 86						****	****			T.	.02		T.	.05	. 02	.02		.10		T.	. 13					1
o Buttes Resvr	do	. 38	.48		1.69	T.	.80										0000	T.		T.	T.		. 15		T.		T.	. 13	3				. 3
ctor	Oil Creek Cimarron	. 04	. 15	. 18	. 80	.80												Т.		. 13	T.				• • • •				)				2
esteliffe	Grape Creek	.01		. 04	1. 20	.01																		T.				. 28	8				Ti.
oodman Sanato- ium.	Fountain	. 57	. 22	. 22	1.98	1.50				1		1		1							• • • •	• • • •		• • • •	• • • • •								1
ortmander	Arkansasdo	.10	.20	.30	.60							Т.	T.	T.	. 10	. 20	. 10	. 10	Т.	T.									. 10		.20	.10	0 5
New Mexico.																		-														-	
bott	Canadian	T.	. 24		. 48	T.											.16	.0	5					.07									. 1
rora	do	. 25	.95	. 25	1.72											. 32					. 14	15		02									
ll Ranch	do	T.	. 34	. 04	.96												.40					.35	.04										. 1
ek Lake		. 17	.36	T.	. 68	· · ·											49																
pezanpana		T.	. 30	. 42	1.10								****				.25					. 25			.06								
con	do	.58			1. 22	2											1, 25					. 24					· ·						
narron (near)	do	. 05	*	. 48	1. 13	. 0	1 . 19	8									. 05																
vis	Red	.30	. 25	. 05												. 05	. 24																
wson	Canadian	T.	.10	T.	1.8	1 .00	3										T.	1	T.			. 05					. T.						.1
zabethtown	do	. 23	*	1, 11																													
lsomrt Union			.27	.70	.00			• • • • •																									
yden	do	T.	. 33	T.	1. 26	3											. 40	)					.30					T.					-
osier Ranch		T.	.51	. 22	1. 60	T.											13	3													1		-
nson's Ranch	do	. 05	.07	. 70	01.08	3											. 33	3				. 08						1					
ppuske Alice	do		1		1	1	1		1	1		1	8	1	1					1		1		1	1			1	1	1	1		
gan	do		. 20	*	. 8												*	.4	8				. 15										
kins (near) xwell (near)	Canadian	16	15		1.7	8 .1										****	1.00			****		.06			. 50								
lrose	RedCanadianRedCanadiandodo	.02	.38	T.	.4	7 .0	2										. 64	i				. 35											
ami Ranch ils (near)	Canadian	19	40		1. 69	6 T							***				3	1	0	****		10	T	****	T								-
ntoya		0 41		* 404	1 . 0	U	0.0.0									4 4	0 00					0.364											
ra Visa o Verde	do	10	. 54		1 6	T.										20						1											
ssamonte	do		. 60													. 00	3					10											
asant View	do	T.	. 02	1. 20	.4	8												2	6		.0	5		***							· T		-
ton	Canadian	. 02	. 03	. 20	1, 2	0 .8	0 .3	5										1	0						. 02		. T.						
ciada	do																																- 0
sebudy	do	. 15	. 10		1.1	5								1			. 59	8			1	. 1/	5	1				1					.1
Vrain (near)	Red		40		1			10	1					1								4	2										-
ano	Canadian	1.10	27	. 12	1.3	7 .0	1									****	. 2	8				. 10	)		.02								
ringer	do		. 08	. 08	. 9	1 .0	7											0	7			0											
ylorxico (near)	Red	. 05	. 25	. 10	1.0	0										***	. 10				.00	3	****										
ementina	Canadian																																
cumcari (near)	do																																
dley	Dry Cimar'r	1			1.3	0 1.3	0 .2	5 .2	8		1.1	5				1.1	7							. 10	*	1.1	7						
ance (near)	Canadian	. 01	1 .33	. 04	11.0	1 .0	1										1	I T				0	. 04					T.					
rmejo Park agon Mound(n'r).	do	. 32	. 21	.0	8 .6	7 .3	0										1.0	3			***	1.1	.04				00	0				-	
Teras.		1		-	1	1	1	1	1	1	1		1	1	1	1		1									1		-	1			
narillo	Canadian	. 0	. 27	.2	1 1, 1	0 .1	4									T.	.3	4		Т.		. 6	7 .00	3				T					-
cher City. thur City   nham	Red																		S m	75				T.	FE	1 0	0						
				1 76	Page 11	THE O	en A	181		1	.1	-1	1	1 1	1 54		1	- 9	-41 181	2.75		- Branch	1 . 28		200							-	17

TABLE 2.—Daily precipitation for December, 1913. District No. 7—Continued.

Stations.	Watershed.	_													1	)ay	of mo	nth.									-					
Stations.	watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
exas—Continued.																																
ildres	Red		2.35		. 45												. 40															
nillicothearendon []	do	10	1.52	1.58	1.01	. 67	. 04	****	****	****		****	****	. 41		.50	. 02	. 24	****	****		40	. 30		.01				****		****	
arksville	do	. 10	. 20	. 20																												
aude	do	. 18	.32	. 46	. 64		. 03								1		. 05					. 35										
sihart [[	Canadian		.06	. 18	2.58							****		****	40		.02	. 18	700				. 16	70	10		****	****		****	****	10
enison	Reddo					. 55	25	****				****		. 20	. 40	61		. 40	1.	****		****	T.	T	49		. 55	****	T.	50	****	. 10
enrietta	do		1.30	. 20	1.30	. 75								. 85	T.			.37													****	
flerson	do			.10	1.95	. 60	. 70								.50			.30					. 10	.50		. 40			1.00			T.
emphisiami	Canadian	15	36	20	60		25	****		****			****			****	10		· ĝi	T	****	15	25	****	T	****	****	****			****	
hiltree	dodo	. 10		, 20	.00		. 20					****	****				. 10	. 00				. 10	. 20		*.							
ducah	Red	.50	1. 10	. 50	. 55												. 38					. 27										
nhandle	Red	. 20	. 20	20	1.00	. 40	95						****		.21		.40	.20	T.		****	. 66	90	95		****						06
emons	Canadian	02	.53	06	1.09	2, 00	. 16	****	****					.09	1.21		40	. 30		****		19	. 33	. 20	T	. 30	****	.08		****	****	.00
uanah []	Red		1.80	. 35	.72							1		. 20				.30					. 40									
ingo Crossing	do			2.50	.70	1.50	. 35							T.	. 20			. 30					. 81	T.		. 31						. 05
erman II	Red					. 67									.24		.50	.43	T.	T.	T.	.51	15		****	70	****					10
ratford	Canadian	.03	. 16	. 03	1. 13	. 07								. 00	. 24	****	.20	. 20		1.	1.	.07	. 15					. 40				
ılia	Red	. 10	. 25	1.41		T.	T.		1		1						.30					. 80			T.							
ellingtonichita Falls	do		. 60			.50		****				. 25																			***	
infield	do		*	*	*	4. 67	****	****						22		****						T	.45		****			. 20				13
										1	1	1	1	1			. 00			****		**	-			****	****		1	1		
Kansas.									1																				1		1	
den	Arkansas	.01	.40	. 07	. 50	1, 20	. 14	. 07							1			. 11		T.	T		. 04		. 02			. 16	3			
athony	do	T.	.40	. 01	.37	. 82	. 09										T.	. 25	T.				. 20		. 04			. 01				
shland	Cimarron	. 10	.50	. 25	. 80	. 05	.02			. 01							.10	. 15					. 13					. 07				
urlington	Neoshodo	775	1.38	24		1.50												. 36	****			****	. 40		****		***		.32		T	T
marron	Cimarron	. 02	.31	. 13	. 43	1.08	. 08						1	1				. 25	T.	T.	T.		.07		.07	****			)			
ldwater	do	. 04	.50	. 05	. 60	.11	T.	T.									T.	T.	.01	T.	****		.08		. 02	T.	T.	T.	****			T.
lumbus	Neosho					97																		****								
olidgettonwood Falls	Arkansas		. 26	.03		. 27 1. 56	. 25							T				20		02	08		9.65	. 20				.07				
uncil Grove	Neoshodo	*	*	*	*	*	*	*		*	*		*				*	*	*	. 02 2. 87	. 10		. 10		. 20			. 24				
mningham	Arkansas		. 73	. 25	1.00	1.10	. 25											. 03	. 05				. 20		. 20							
odge City	do	. 09	. 28	.04	. 63	.51	. 08										.06	.06	.01	.07	T.		. 05	. 02	. 02		. 03	T.	2			
	do	.02	. 55	. 11	. 52	. 88	. 11	.09						. 02	2			. 17	. 01	.06	.01		.02		. 24			23	3			
mporia	Neosho		.32	1, 13	. 20	1.55												. 18			. 10		. 18	. 05	. 15			. 16	. 04			. 01
ıreka	Verdigris		. 60	1.40	****	1.40	. 30						. 25					. 20		. 07			. 35		. 20							
all River	Cimarron	T.	1.00	1.00	. 25	.08	. 10	. 02						T.				. 15		T.	T.			. 15	. 10		0.5				10	. 05
edonia	Verdigris	T.	. 22	.63	. 14	.92	.00	. 01							. 04	.01		20			. 01		.31		.11		. 05	T.	T			T.
arden City	Arkansas	T.	.50	. 20	. 45	. 95	. 12											. 40	T.		T.		. 10		. 05		T.	. 08	5			
eensburg		T.	. 46	. 10	. 38	1.40	.11	T.										. 15		Т.			. 03		. 05	T.	T.					T.
renola	Verdigr sdo		1. 26	1. 13	. 62	60	T.	00				0 . 0 .		- OC	5		T.	. 30	T	T.	. 03		39		. 20			T.	T	T.		T.
ugoton	Cimarron	.02	.50	. 15	.93		.14	.00	1								.02	. 14		. 20	T.	T.	. 19	T.	T.			T.				
utchinson	Arkansas	T.	. 12	1.07	. 65	1.32	. 14							T.			. 02	. 23					. 25					. 10	0			
dependence		T.	1. 20	.37	. 14	1. 15	. 20								. 01			. 33			. 02		. 50		. 25			T.			70	T.
ene		30	30	20	1.00	. 00	.03											10					10								. 1.	
tmore	do																1	1														
ingman	do		. 60	.09	. 47	. 85	. 14	. 04	1					. T.			T.	. 18					. 27		. 19							
kin	do	T.	- 42	. 12	. 72	1.07														1					. 16			T.				
rned			34	. 10		1.35								1		0000		. 12	T.	T.	T.		.05		. 16	. 10	B	.00	6			
bo	Neosho		. 98	. 44	. 21	1. 20											T.	. 20		. 02	. 03		. 25		. 10			. 16	0			T.
Roy II	do			1. 28		. 66		.04	4									. 17	T.				T.	. 33	T.	T.	T.	T.	5	4		. 02
beralacksville	Cimarron			.10	, 83	1.61		T.									. 04	. 19		T.	T.		. 20		90	T.		.00				T.
cPherson	do		64	73	.40	1.42	.14	1															.03		. 35	1.		.40				1.
adison	Verdigris				.12	1.65	.03	1 .02	2	1	1	1	1			1		1.10		. 01	.10		.35		.00			. 13	3 .01	1		T.
arion edicine Lodge	Neosho	T.		.45	.37	2.30	.09	.00	5					PR.				.10		.08	.08		.14	T.	.15			. 2			T.	T.
inneola	Arkansas Cimarron	. 00	. 58	.04	.30	.99	.04							. T.			. 20	.08	T.	Т.			.09		. 11			.0: T.				
ount Hope	Arkansas		.60	.15	.40	.99	.10											. 20					. 20		. 20			T.				
eosho Rapids	Neosho	.10	0	1.33		.99	. 55											. 24						. 25		. 01	9					
ss City	Arkansasdo		78		.45	1.43	.32										. 20	.10	T.	.14	· m					1 .	T.	-i				
rwich	do		1.05	.10	.50	1.19	.10	01		****					. 0	2 0	T.	. 18		.02	I.	****	286		. 13			.0	5			
Wego	Neosho		1.02	. 25		1.90										.1		. 44					. 51			. 2	0	. 0	5			
ains	Cimarron	T.	.34	T.	. 57	T.	.10	)									T.	.20	T.		T.		.10	T.	T.		. T.	T.			. T.	
att chfield	Arkansas Cimarron	04	7 .16	.10	1 20	1.28	. 13											- 12		. 04	****		. 25		.30				5			
me	Arkansas	.04	1.00	.34	20	1 31	no	3						1 1	6			93			. 09		. 34		1.13	5			0			
nta Fe	Cimarron		59	.06	. 51	.10	.05	5										. 20					. 08	. 02			T.					
dan	Verdigris	. T.	1.80	.66	.40	.90									T.	T.		.36	T.	T.	. 03	3	. 40		. 2			. 0.	2			
rontovsses	Cimarron		1.20	. 65	.85	. 24	11							1	0		20	. 19			***	20	.70	T.	. 08							
alnut	Neosho		1.91	T.	T	1.62	T										. 20			T.	****	. 20					Т.	T.	T.			
ellington	Arkansas	. T.	.82	. 26	.36	1.00	.00	3				0	3	. T.				. 20		03			.39		.10	)		T.				
ichita	do	. 01	1.11	.06	1.17	. 76	. 08							0	1 .0	.0	2 .09	.09	3	.00	T.		.20	. 02	. 21	T.			3		. T.	
infield stes Center	do Verdigris	T	1.00	52	.30	1.30	.00	T						T	T.	T.	T.	10	T.	. 05	30		. 40	00	.10	T.		T	1	o T		
	TOTAL STATE		1. 20	.00	. 13	1.00	****	1.	***							****	****	. 48	1	.01	. 01		****	.00	. 40	1.	***	1	1	1		
Oklahoma.								1	1										1					1	1							
la	Canadian		80	.76	. 24	.82								6	5 .3	8		. 28	3	44			.40	)								3
tus	Red	31	1 2.33	. 33	1.05		. 09							2	1		22	. 08	3			. T.	.30	)								
Va	Arkansas		. 25	. 65	.15	.08						7	0 .1	2				. 24	.0	8 .02			. 30	1.10	1.10	0		- T.			2	0
pache	Washita	14	41 45	0.3	80	.42	-00	9		1			1	11	2		2 .15	1 17	7 30	5	1	20	5.	5							. Т	
dmore	Red	. 49	. 48	1.10	.40	. 65	. 04	.0	4					5	0 .2	8	. 16	43	3				. 46	3	1							0
rtlesville			-1-					-					2000																			

Table 2.—Daily precipitation for December, 1913. District No. 7—Continued.

Stations.	Watershed.	-	1	- (	,	1	-	1		. 1	į.	,	-	- 1	- 1	-	of mo	1	-	- 1	-	1	1	-1	1	1	-	1	-	- 1		
101		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21 :	22 :	23	24	25	26	27	28	29	30	31
klahoma-Contd.																																
ıffalo	Cimarron		1.00		. 55		05											20					15					.15				
ache	Red	. 20	2.40	.18										.70		. 20		. 20				.50 .										
alvin	Canadian		1.15	.40	.38	. 24								.42	.38		. 23	. 20	***													75
handlerhattanooga	Red	97	1.52	.58	. 40	1.25	no			1	7.04			95	T.		23	.05	0.2		- 8	. 50	20		***			****			****	T.
nickasha	Washita	. 41	.60	1.06	.41	.97	T.	****		***				. 44		1000	. 20	23	T.				.38	T.								
eveland	Arkansas	T.	2.14	.30	. 60	1.05	. 03	.02						T.			.12	.36	.12		Т	1	. 33		. 08	Jan.		. 03			T.	
oud Chief	Washita	. 17	1.97	. 04	1.47	. 66	T.	733						T.	41	. 27	.17	T.	T.	T.	. 10	. 55	25	m		T					****	20
urantldorado	Reddo	14	2.05	1.27	. 40	.00	1.	T.	****					. 14	. 41	.01	****	. 33	.01	1.	111	T.	.04	1.	***	1.		****		****	****	. 20
1 Reno	Canadian		1.42	. 44	.98		.08										.16			.17		. 001.										.24
nid	Cimarron		.35	1.12	.18	.78	T.	.06										. 26	.06	.05 .			. 28 .									
rickufaula	Red Canadian	. 10	1.25	.18	. 82	.92		****						61	. 15	.04	m.	92	T.		20		. 50 .			17		****		****		
airland	Arkansas	****	.87	.10	. 64	1.42				****			T.	.07		.02	.22	. 20	1.	****	. 20 .	.53	T.	.22	.26			T.	.12			
ort Gibson	do	T.	. 55	.62	. 45	.85	. 33	.05							.35			. 23		. 05 .			. 07	.60	T.	.43	T.	T.	T.	T.		
rederick	Red	. 72	2,62	.15	1.03	.04	. 08							.39			. 22	.07		.01	m	.05	. 20 .		m	m		T.		****		04
earyoodwell	Canadian	. 28	1.69	.04	1.23 1.42	.38															1.	20	. 30 .	***	1.	1.	****	.05				.01
	Cimarron	T.	1.25	. 15	. 35	1.25	. 10											1.60			.05 .		.40 .									
uymon	Canadian	T.	. 50	.50	. 67	.28	. 05										T.	.65				.31										
ammon	Washita Red	20	1.05	1.15	.10		10						****	65			25	1.03	.14			***	.90	.00	T.		****			****	****	19
	Arkansas	T.	T.	.39	. 48	1.68	. 05	****						.35		T.	.09	.17		1.		.06	.40 .	***		.35	****	.15	.02			
elena	Cimarron		1.46		.94		.10							.14									.30 .		.10				.02			
ennessey	do	. 05	1.35	.11		1.00								.10			T.	.35	000	T.		.31		T.  .							1.	****
lobart	Red Canadian	. 19	2,60	. 05	1.00	1.27	.11				****			58	.43	****	.15					.12	. 45 .		A.						****	****
looker	do			.08	.97	T.	. 25										.05	.15					. 20					.05				
lugo	Red		1.47	. 62	2.00	.34								.58			. 25	. 05				.40 .			. 61							****
	Cimarron	***	.19		70	T. 2.10		****			****			20	.50	T.	. 30						.40		20	1.30		***		****	****	****
abelefferson	Red Arkansas	****			. 44	1, 15	.04							T.			.06						. 30 .								10000	
enton	Cimarron	.17	.80	.40	1.91	. 15	.30							****			T.	T.				.10	. 25	.07	T.			.05	****			
ingfisher	do		1.73	.07	.18	1.00	.08								****		. 24						.35		.05		****					
awton	Red		1.08	. 42	. 96	1.32	.07							.77	. 02	.02	.55		.05				.37 .							***	***	
cAlester	Canadian		.91	****	.56	.74	.07	.09	1111					.41	. 45	.02		.15					. 25		. 27							.02
langum	Canadian Red	.30	1.02	1.24	.30	T.								****	****		T.	. 20	T.				. 85 .						****	T.		
larlow	Washita	.50	1.50		1.00	1.30			T.								. 15						. 20		T.							
luskogee (1)	Canadian Arkansas		1 36	.52	1.02	1.25	10		T.		. 22			59		. 40	. 25		.04	.10			.52		. 22	.37			.09			****
luskogee (2)	do		1.40	.04	. 53	.71	.02	. 20	)					.31	T.		T.	. 23		T.			. 40		.90		.7.		.21			
futual	Canadian		1.00	. 20	. 83												. 15						. 50						***			****
leola	Washita			1.69		1.46	T.							. 23			T.	. 35			7E		. 50					T	***		****	****
lewkirk	Arkansasdo	***	.86			.83	.27	.14						T.	. 28		Τ.	. 22		. 15	1.		. 60 .		T.	. 45		1.	.06	1111		****
	Canadian	. 26	1.22		.42		. 01							.27			. 09	.16					. 60		T.						****	
keene	Cimarron	.15	1.42	. 05	.37	. 91		.01						. 24			.07	.20	. 04				. 40		. 05	T.		.01	****			
	Canadian	.12	2,00	.30		1.12	.03							.80			.21	.15		.03		.00	. 24		T.			T.			***	
	do	.00	1.73	.01	.70		T.										T.	T.				.10	.50		T.		T.	T.				
auls Valley	Washita	. 42	1.06	.28	.06	.81									1.43	3	.32		. 46				. 40					T.	***			
awhuska	Arkansas		1.50		. 82	.36												T.			T.		. 40			.30		T.		***		700
erry	Red		1.40	.10	.59	1.36	.06	)									.11		T.	.09	.10		.70		.15			T.	****	1	****	1.
lavia	Washita	.25	2.00	.20	.18	. 65											. 20	.18					.41									.26
ac and Fox Agency	Canadian	.10	2. 24	. 24	. 43	1.53	. 03	5						. 48		. 00		.20	T.		. 02		. 33		.08							T.
	do					1.19		T.							.0			.39		T.	.06		. 40		T.	T. T.			T.			T.
tillwater	Cimarron Arkansas	***	55	1.20	87	1.10	.03							.22				.56			.10		.31	14	90	91		11	07	7	T.	
ulsa	do		1.40	.87	. 47	1.14	. 04							T.	. 24	1		28	03	T			.30	.37	.10	.15			. 10	0.00	3	
inita	do		. 1.85	. 05	1.2	.70	T.							. 15	T.			. 33	T.				. 50	. 25	.05			. 02	T.			****
VagonerVaukomis	do		* 1 50			1 10	0							.08	T.		.05		. 28	T.			1.00		. 28 T.		****	T.		****		T.
Vaurika	Red	- 60	5 1.52		49	1.10	.00								T.			.13	T.	1.			0.00					A.		T.	1	
Weatherford	Canadian		56	1.46	. 18	. 68	T.									1		. 26	.06	.07	T.		. 60		T.	T.	****	T.	T.			
Vebbers Falls	Arkansas			.10		1.10	.0	5	10000					. 50			. T.		T.				. 40				****	T.	T.	T.	T.	T.
Whiteagle	Canadian			. 63		1.35	.10	8					44.50				T.					.48	.14	T.	T.	.05	T.	T.		T.	1.	.02
Vyandotte	Arkansas			. 10		. 50									***		- 12	.00	.02	****		. 10			,	.00						2400
			-			1																										
Missouri.		1														1		19										1				1
Belle	Meramec	. 3	2		1	. 40	.2	3 .00	3															. 60		. 30						
Birchtree	Black					. 20	.1	6 . 13							***			. 35						.22		. 90						
ape Girardeau	Mississippi						.3												.05			.02	***-	. 80		. 10	.70	)	. 10	0 .0		. 02
Cardwell	do	1			1	38	.0	2 T.						***	. 25	00		. 25	.10			****	.31	.10	****	1.10			. 41	T.		T.
assville	White		T.	36	. 2	0 1.03		1.	7					T.		9		.00					. 83	.10	T.	. 54			T.		1	
Dean	Neosho					3 1.33	.0	3						T.	1			.06					. 60			.20					Jane	100
Doniphan	Black		-			. 0									1	6							20	. 41		1.35		4	1.18			T.
Fruit City	Meramec				1	. 03										1							.30 T.	.44		1.20			T.			
oodland	Black					. 08	3 .2									1					.17			. 15		.70						
Hollister	White					. 2.2								. 2	5			.40	.10	) !		. 20			. 50	×						(70)
ronton	Mississippi			3			.3													2			98					0	T.			T.
acksonoplin	Neosho		- F4	2	T	1.40	1 .1				***			T.							.07		.35	****	.30				. 10			.00
Koshkoneng	Black				1.				3					1.		5							.30	T.		1.00			T.			
amar	Neosho			7 .3		6												T.	.2				T.	, 43		T.			. T.			
Marble Hill	Mississippi.									***													. 85						50			
Mountaingrove	White	T		.0		0 .8								T.		4		. 34				T.	1.00	. 24			3		1	-		
Neosho	Neosho	1:00	9	7 .1	0 .1 7 T	1.2	5							.1:				30	0.	1	T.								. 6	5		
New Madrid	Mississippi.	2	2				2									4 .1	0		1.1	1			.02	.40		.30	. 2	0	.10	0 .3		-
Dakfield	Meramec				1 170		0 .1	0										21			.10		T.	.21		.70	3		T.			
Rolla	do				4 70	7								- m		4	* 70				T.		T.	. 34					2 T.	T		intention.
neinafield	White		. T.	1.0	2 T	. 1.4	0 .0			***				. T.	1.0	4	T.	.4			T.		. 49		1 . 4	0.0		0	A.			1
pringfield			1	1		1							1	1					1		1				1		1	1		1		

TABLE 2.—Daily precipitation for December, 1913. District No. 7—Continued.

Stations.	Watershed.	_													1	Day	of m	onth															
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Tennessee.																																	
olivar II	Mississippi	. 25					. 18								. 20	T.		T.	. 35			T.		. 69		. 84			. 25	. 29			. 3
ownsville	do						. 20	. 01						1	- 17			. 02	. 18				. 60			. 56		.90	.33	. 20			- 2
vington	do						. 15								T.	00			T.					. 70		.20			. 10	. 60	T.		2
ekson	do	. 10		7			.20			****						. 15		.20	T.		T.		. 20	. 10		.70			. 62	. 04		T.	19
mphis	do					. 06								T.	.06			. 21	. 02				. 44			. 38		.08	.41	. 03		. 04	1
lan   enton	do	5.3		1	1	4	. 10		. 01						T.			T.	.20					1.05		. 15	. 45		. 35	. 25	T.	T.	3
nion City	do					.20					****				.10		****	. 15	****	****	****			. 59		. 52			. 54			.04	1
Arkansas.																																	1
nity	Ouachita		1	1 . 79		.21	. 53	. 01							06	-	-19	- 01	. 09	****				.56	. 52	.26			. 23				3 2
kansas City	Mississippi White Arkansas				. 03		. 60								1. 10			. 12						. 65		. 60			. 67	T.			. 3
tesville	Arkansas	. 02		.10	10	1, 10	.30	. 04						T	.08	. 50	****	. 22	.20	****			35	. 50	****	20	. 40		. 06	. 14	Т.	T.	3
e Branchntonvillergman.	do		. 09	.30	. 14	1.49	T.							. 17	.01		.09	.24			. 01		. 52		. 24	. 06		. 05	. 03			T.	3
rgman	white	18	T		. 05	1.93	19	06					****	T.	. 22			.56			****		. 35	T		.80	· m		13	10			4
nkiev II	QO						- 40								I LEPS	- 12		- (105)	. 00	****			. 60			.32	T.		. 48	T.			1 2
ico Rock	Omochite		****		20		. 80								T.	T.		T.	.30	****		T.		. 40		. 58			****				. 2
terpoint	Ouachita Red		.20		.79	1.39	. 42			****		****		.21	. 20			.10		****		****	. 45	. 43	. 60	. 33	.01	.35	. 58			****	2
rendon	Red White				. 04	. 02	. 44								T.	. 13		. 05	. 04					. 50		. 30	. 05		.34	. 07			i
ning	Arkansas	. 00			. 10	. 23	. 03							. 07	. 43	. 02	01	.06	. 04		!		. 56			. 53			. 20				. 3
danelle	White				.28	. 13	1.82	.06						****	. 03	.10	. 01	. 10	. 05	****		·UI	. 10	. 40		.50		. 00	.10				3
dd City	White				. 20	1.50		. 60							.34			. 50			****	. 10	. 20		. 38	. 55							. 4
nas	Arkansas White		****	T.	****	3.11	.60								. 05			30		****		****	. 60		. 95	.70			. 40	.20		****	62 63
orado	Ouachita		1		. 15	T.	.50								. 45		T.	T.						.30		.30			. 82				
land	Arkansas White		****	T.	.20	1 74	.80 T.								.03				. 02	T.				. 40		. 62	T.		. 45			T.	15
eka Springs	do		.17	.02	1. 03	1.70	.03	****	****	****	****	****		.21	.24	1.	****	. 37	****	.03	****		. 26	.07	.31	. 43		****					
lyce	Ouachita			.30		. 60								. 20									. 35			. 40			. 40				
Smith	Arkansas Red		.21	.51	1 00	1.78	. 09							. 32	.01	****	. 06	.10		T.	T.		. 58	70	. 48	.01	T.	T.	. 03				
rgetown	White				.02	T.	.38					****			T.	. 15	****	.01	.18	****		T.	****	.50		. 35	. 15			.03			
ly	do			.01		. 13	. 45	. 02							. 15	.02		. 23					. 40			1.35			. 04	. 02	T.	.01	El :
na [] Springs	Mississippi	. 03	· m	45	67	1 15	.38	70		****				10	.04	· · · ·		. 09	17		T.	70	·m·	. 48	200		. 15			. 12			
tig	Ouachita	.00	1.	. 90	.20	. 32	.20	1.						. 41	.72	1.		. 15	-14	. 20	1.	1.	.47	1.	.20	.24	1.		1.36		****		
sboro	White														. 40			. 40					.50			. 40			1.00				. :
e Farm	Arkansas Red	****		. 10	.10	. 09						****	****	11	. 12			. 12				****							.70	:7:			
le Rock	Arkansas			. 05	. 14	. 68								. 02	.27			. 09	. 05				. 40	T.	. 20	. 41		. 46	. 19				
herville	do			.08	1.44	2.14	.03							. 17	. 25		T.	. 16	.06				.37	. 13	. 13			T.	. 15				. 1
moth Spring	Ouachita White	T.		T.	.00	. 10	. 30	.07	****	****	****		****	****	. 30	T.		. 20							. 50					T.	****	****	
A	Ouachita		. 13	. 13	. 69	2.44								. 39	.04			. 20	. 04	. 04			.38		. 56	. 20	T.						- 1
port []	White	. 04			.01		. 50								. 42			.26	. 15	****		****	****	. 40		. 80				.09			
abontas	White						.20	.05							.32			.00	1.											.05		. 05	5
1	Arkansas			. 17	.72	1.32								T.	. 11			. 33					. 47							.08			. 3
land [[eott []	Ouachita				.06	*10	. 60								1.31			30									. 02		1.35				
n [[	do				99			- 1					8		19			. 05					.32			. 32		.80					
ers	Arkansas Red		T.	T.	. 42	1.63	. 05	.03						. 02	. 11		T.	. 48				T.	.35		.30	. 25			: : : :				
ngbank []	Arkansas				. 08	. 24	. 33				****		****	. 04	. 04	1.05	. 24	. 02				****		.00				****		****	****	1.	
800	do			.07	1.30	2.00	T.							.20	T.	. 26	.07					T.	. 68			****	1	.45					
in	White Red		T.	.31	2.83	. 44		. 20						. 38		.30	. 27						. 57	****	. 38				40			70	
ren [[	Ouachita				. 10		65						1		35									40		30			-50				
tecliffs	Red				1.07	. 40	.30																	.20		. 40				.10			
gs	Red Ouachita St. Francis			.06	.74	1.13	.06							. 13	. 23	16	****	. 15	. 14				. 46	T.	T.	. 48	25	T.	. 39	19		****	1
Mississippi.	Du Tuman.		****				. 21	****		****	****			****		. 10	****	.00	. 1.6	****		****	****	. 30	****	. 17	- 20		****	. 12		****	-
ıilla	Yazoodo						. 55							. 20	.75			. 10					. 60	. <u>.</u>		. 40			. 76				:
insville	do			T.	1.	T.	. 38		****		****				.04	.02		. 12	21				. 60	T.		. 59		T.		. 09		T.	
onno	Big Black				.01		. 50							. 05	.32			. 05					. 35	.08		. 65			. 50				
leston	Yazoo						. 37								.75			T.	. 15				. 55	. 05		. 55			.70				. 3
sdale	do			T	T	. 52	-44							T	1.21	.06	****	.03	.10					.37		. 35	. 09		- 47	.08			
LII	MISSISSIPPI	. 20	***				.20	T.							.30				.24					.84		. 66	. 28		.18	. 18			
shaw	Yazoo						. 10									. 50	. 20						. 20			.80			****				
ardstte	Big Black Mississippi					T	. 08			****	****	****		. 18	.11		.06	.08 T.			****		. 53		T								
wille Jj	Mississippi Yazoo				T.	T.	. 56								2.16	T.		. 03	T.					, 22		. 45	.01		1.16	.01			
AWOUGH FELLONS OF A					× U0		* O.L.								2 . 191	. UO		* IU1						.70		. 51	.06		. 60	. 33			
adaando []	do	.16	****	. 10	****	. 20	.11			****	****	****		****	.30	****		.03	.06	****			. 20	.45		.30	T		.38	.00	.03		
Springs II	do	.14					. 11								. 15				. 18					.78		. 86			.36	.08	.01		
insko []	Big Black		1		.01		45								50	04	T	. 04						. 55		-77	.03		. 83	. 12	.02		
ne [[head	1 8200do	. 46		****	T		.48			****	****		****	. 25	. 21 1. 00	.04	****	.02	T 12	****			.62	. 68	****	. 62	. 30		1. 25	. 10		T.	1
headhez	Mississippi						- 621								1.320	T.		1						. 23		- 334			. 76		Leve -		
0000	Y 8200						- 501							- 45						· · · ·			1.05		. 47	1.00	·		****	****			
Gibson	Yazoo	***		****	.10	.05	. 55		****		****	****	****	****	. 45	.05		.05	.03	T.		****	****	. 60	****	. 45	I.		.60	.05		****	
008	Mississippi Yazoo Big Black						. 51							T.	. 29			T.					. 60			1.07	T.		. 43				
olk	Mississippi				T.	.30	. 25 .							.90	1.39			. 03			1		. 32		- 201	- 24	1	1	. 49	1	1		. 1
lla	Mississippi Yazoo Mississippi		****	****	T.	T	. 67						***	T 10	1. 39 .72 .60 .23 1. 15 .70	****		.08		****		****	. 40	****	.27	. 73	****	Ť.	, 80		****	****	1
Sourg	do				T.	. 50	. 11							.19	. 23	T.		. 03	T.				. 32		. 22	. 29		T.	. 32				
	do						. 57			0000				- 10	1.15		1000	T	-				1 06		OF	9.5			453	- 775			

Table 2.—Daily precipitation for December, 1913. District No. 7—Continued.

															I	Day	of mo	nth															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1
Louisiana,																																	
beville	Coast					. 45						. 11		.42	. 14						. 25				. 82				.72 T.				2
xandriall	Red						. 54								1.32			. 10						. 05		.30		. 40					1 9
nite	Coast	T.					. 12								1.20					T.	T.		. 35			1.00	T.		T.	. 15			2
tioch	Red				. 20	. 35	. 05						4621		92		1		- 16													****	1
oca Island	Coast						. 10				****		****	. 47	.90				****		. 55	****		****	. 60	. 60			. 40	****		****	H
ton Rouge	do						. 05			****	****	****			. 90	. 92					. 08	. 19	. 09	. 12		.71				. 40		. 00	
rrwood	do	03	****	****			02	03	****				****	****	. 68			****	****	96	33	****	9 17	****	2 40	1 00	****	****	1.00	37	****	****	1
houn	Ouachita	.00			.02	52	. 02	. 00		****	****	****	****	01	21	****	****	06	01	. 20	. 00	****	08		2. 10	20	****	****	1 03	.01		****	ı
meron	Ouachita Coast		****	****	. 02	.21	****	****	****				.02	. 66	.22	****	****	.04	. 01	****		****	. 11	****	. 93	. 40	****	****	. 96	****	Tr.		ı
II officere man																													20		5		1
clare	Coast					. 25								. 40	.60					.10	. 20	. 10	. 10		. 75			. 25	. 15				1
nton	do	. 02					.23								. 67	. 15		T.				T.		. 15		. 55	. 01		.12	. 15		. 04	Į.
linston	Ouachita						.70							1.03				T.	T.				. 20						1.29				1
vington	Coast	. 30					T.	T.								. 46					. 14	. 04		.79		1.00	T.			.09		.01	18
dson	Coast					.51								1.02	. 30	1 40		. 18				1 00	. 11	***		* 00		.27	1. 14		75		4
naldsonville	do	1 94				T.			m.					70	. 20 T.	1. 40		****			. 05	1.00	. 30	. 38	1 40	1.80			.36		T.	TP.	ı
rmerville	Ouachita	T. O.								0000				4.	1.					00001		0000	. AU		1. 40		0000		1.65			4.0	İ
rence	Coast		****		. 10	35					****		10	05	35		. 13	. 00			15	05	. 41			75			. 60				4
anklin	do	. 02											. 05	T	.35	20				.02	. 22	22	. 75	. 01		. 78	T		.01				4
anklinton	Pearl	. 06					. 12								.90	T.					T.		. 43	T.	.60	.36			.25	T.			4
and Cane	Red				.70	. 10	. 45								1.83			. 54	. 03						. 65				1.62				4
and Coteau	Coast					. 10	. 50							1.65								****	.26		. 36	. 03		T.	. 68		T.		4
mmond	do						. 10							T.	. 45						T.		. 95		. 85	T.			.68		T.		4
uma	do						. 10							.50	. 05																		4
nerette	do																				. 96		.22		.76				.72				4
nings	do					****	. 35						. 15		1.00						. 29	.08		. 14		. 48			.78	- 6104		11134	ŒΙ
ark	Red				. 02		.00						·	.08	1.00							****	. 14			. 28		. 80	****			T.	4
ke Charles	Coast		****				. 00						T.	. 02	.04						. 00	. 02				. 50	2 00		. 40	.20		.70	J
keside								22	4							****			42	****		****			1 00		2.00		70			. 10	
wrence	do						1	.06			1				1.36			****				.75		. 68	2.02	1, 18			. 10	. 62			1
berty Hill	Red				. 12	. 41	T.						. 55	. 65			. 15					.34		.20	.24	2000	1	T.	1 20			T.	1
gansportil	Sahine		1		1.36		.36	3							1.36			. 38							.30	. 17			1.66				J
elville	Reddo						. 6	5							1.36 1.95 1.00	. 08	3	T.						.30		. 39			.21	. 18		T.	1
nden[]	do				. 12	.06	. 45	2							1.00			. 20	. 05					.32		. 42			1.60				4
nroe	Ouacnita				. 01	. 02	. 6								1.25			.06	.04	.02				. 09		. 12	. 03		1.04				d
organ City	Coast	. 05					.0	. 02							1.25						. 29	***			1.02				. 51				d
poleonville	do Coast													. 30							. 85	. 45		. 05	. 85				. 35			****	á
w Iberia w Orleans (1)	Wiesissinni				T.	T.	1.2					1.	.0	. UK	.80		0000			T	. 30		. 20		. 70	T.							A
w Orleans (2)	Mississippi	0					1 1								12					I.	.16		17	00	1.04	T.				. 02	1.		ă
w Orleans (3)	do	04			****		1.0	8							17					****	15		19	.02	71		*****	0000	15			****	1
w Orleans (5)	do	. 0	01			****	1	2							07					****	. 16		12		94				.36		0000	1	1
w Orleans (6)	do	0:	2				.0	8					1								. 18		1.4		0.9				39	- 00	2	1	1
or Onloans (7)	do	1	1		1	1	1 04	n:	1		1	1	1	1	0.0		1	3	1		9.0	1	0.0		0.0	il.	1	2	1 40				
w Orleans (7) w Orleans (8) elousas   radis. arl River   ain Dealing yne	do						. 0	3							05						. 14		. 10		. 95				. 07				
elousas	do						. 5	9							. 1.98	. 12	2	. 06	3			T.				. 64			. 27	. 21	l	. T.	
radis	do			. 50					20	0				70	0						. 10				. 50								ı
arl River	Pearl	0	1			***	. 0	2 .10	)						. 02	.00	8				. 02	.06		.20		1.10	)		. 10	. 12			
ain Dealing	Red			. 0	. 45	. 40									73	. 1	5	. 22					. 55	***				. 3	. 83				×
yne	Coast						0	0					. T.		. 1. 10						. 00	.30		- 40	.00				. 80	- 10			
serve]] chland Plantation	Red													T	1 00	. UR						****	01	****		30			72	. 2			ă
beline	do				T	12	. O	0						. 1.	1.00			14					. 01	****	7/	70			1 10				۸
iston	Ouachita					41	1	5	***					7	1. 08 1. 58 4 99 10	***		110					20		20	A.			3. 34	****			i
Francisville	Mississippi.	T					1.4	4							00	1	5	. 40			T	1	.02	63	3	.50	8		29	20	8	. 03	ã
Gabriel	Coast					. 10	)								. 10	)		1			.40	)	30	)	1.50	1	1		. 68	1		. 00	1
hrieverli	do	4	0																		T	40	)		1.50	1.10	0			.0	0		-
reveport	Red			. 2	. 10	39	2							. 1.0	8		26	. 00	3				. 38	5	27	.0	4	1.3				. 06	ĝ
reveport	do						6	7							96	1 .1	7	.0	1					. 25	5	.34	4			. 40	5		1
uth. Univ. Farm.	Coast						5	0								5			T.		.40	)	. 10	)	90	5					. T.		
gartown	do					51	1							7	9 1.78	3												. 1.0	8				
llulah	Mississippi.						5	8							. 1.10		02	.0	3					. 47	7	3	0		60	5			
alker	Coast																								8								

Precipitation included in that of the next measurement.
 Separate dates of falls not recorded.
 Precipitation for the 24 hours ending on the morning when it is measured.
 Precipitation is less than 0.01 inch rain or melted snow.

Table 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 7, Lower Mississippi Valley.

			Col	orado.				New	Mexico			Te	cas.						Kan	ISBS.						Oklal	noma.	
Date.	Lat	nar.	Lead	lville.	Pue	eblo.	All	bert.	Cime	arron.	Ama	arillo.	Par	is.§§	Dodge	eCity.	Ellin	wood.	Io	la.	Libe	eral.	Wie	hita.	Ardm	ore.§§		tles- le.§§
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
1 2 3 4 5	43 40 38 39 42	30 28 29 30 28	32 24 25 23 22	11 0 6 16 13	. 39 37 36 32 37	32 24 24 27 29	53 47 40 45 40	33 30 31 33 29	44 62 36 33 39	26 16 21 27 17	46 51 42 53 43	38 40 34 36 30	69 58 60 58 60	44 45 54 54 53	49 49 49 51 48	42 46 44 47 34	55 51 53 53 53 50	47 49 49	55 54 58 55 51	50 50 53 51 46	49 50 49 49 47	42 45 38 43 39	56 54 56 54 53	48 50 51 51 45	65 57 59 56 58	43 54 55 54 49	56 59 55 57 55	5 5 5 4
6 7 8 9 10	38 34 40 35 38	30 20 14 16 14	29 38 33 37 38	6 4 9 8 5	43 29 36 33 43	26 7 5 3 8	42 48 47 53 46	33 25 21 23 23	42 34 49 40 48	25 12 7 11 16	41 38 46 46 49	31 24 23 26 27	53 50 51 51 55	41 41 27 27 28	38 36 43 46 51	33 25 24 26 25	42 39 40 45 48	26 21 23	55 43 38 43 54	39 26 21 23 28	49 37 41 43 47	29 23 23 24 27	46 38 38 40 50	37 28 24 28 30	55 45 50 51 56	41 36 26 27 29	45 44 44 50 55	3 2 2 2 3
11 12 13 14 15	40 40 40 40 39	13 13 13 13 13	37 36 33 42 41	7 5 4 9 15	40 40 37 38 44	10 7 3 8	47 46 53 43 40	19 18 22 20 31	45 44 42 44 41	10 12 12 15 15	54 52 46 50 46	26 28 27 26 29	58 63 47 55 60	32 34 36 44 40	57 50 49 49 52	24 27 24 25 25	54 53 52 49 55	27 27 27	55 54 51 46 43	26 31 36 36 29	53 49 45 50 52	24 26 25 26 26	51 50 46 49 48	30 34 35 34 32	58 61 47 50 53	33 34 45 43 34	56 56 52 53 50	2 3 3 4 3
16 17 18 19 20	37 38 40 30 20	24 28 20 15 12	26 29 29 10 20	13 12 4 - 7 -10	36 37 27 30 26	16 15 6 8 1	42 45 43 48 38	27 16 24 21 17	35 41 29 35 25	23 18 10 5 - 2	37 34 44 51 33	30 27 28 27 21	53 54 55 54 52	39 47 47 42 43	39 38 39 48 31	30 33 34 31 17	48 44 45 46 44	27 37	49 51 49 50 47	36 42 38 40 22	43 36 39 43 33	31 31 32 32 32 22	47 49 44 46 37	37 41 34 35 20	51 50 53 48 46	43 45 46 37 36	52 50 47 52 37	3 4 4 4 3
21 22 23 24 25	26 27 28 32 36	6 6 8 10 7	20 22 22 22 14 33		21 27 32 31 25	$ \begin{array}{r} -5 \\ -2 \\ 11 \\ 4 \\ -2 \end{array} $	30 35 39 46 48	20 7 9 10 9	24 25 42 30 29	- 5 7 12 2	25 26 39 31 32	20 14 4 9 15	39 40 46 43 37	37 32 27 27 27 35	35 30 31 30 29	14 22 19 18 11	37 32 37 30 28	14 23 19 22 7	33 33 31 35 32	16 25 25 28 18	32 31 27 33 37	17 12 4 16 14	34 30 26 30 27	18 24 15 26 11	38 35 43 45 34	28 29 24 35 32	37 35 34 35 26	2 3 2 3 2
26 27 28 29 30	38 34 24 26 24 24	8 24 14 1 - 1 6	23 27 40 35 22 33	6 0 2 9 5 2	41 35 34 33 28 47	10 10 3 4 - 3 6	57 42 44 44 43 46	14 26 18 16 14 18	43 38 39 38 14 37	11 22 11 13 4 11	40 35 38 41 37 42	17 21 23 22 26 23	40 38 45 43 47	24 24 32 32 26 28	26 29 44 38 29 48	15 19 15 17 20 18	28 29 32 34 27 35	2 19 6 6 8 24	30 32 32 32 32 32 35	10 26 29 28 23 30	37 37 43 43 38 47	14 22 18 22 20 20	24 31 29 25 30 31	6 24 13 17 18 28	42 41 43 45 47 41	21 32 27 26 26 35	33 32 33 41 40 39	1 3 3 3 3 3
Mns	34,8	15.8	28,7	11.3	34.6	9.6	44.5	21.2	38.7	12.4	41.5	24.9	51. 10	36.8	41.3	25.9	42.4	25.7	43.8	31.8	42.2	25, 4	40, 9	29.8	49.1	36.3	45.5	35.
							Oklah	ioma.									-		Misso	ouri.								
Date.	Eni	d.§§		Al- er.§§	Mang	um.§§	Musi	cogee.	Oklal	noma.	Wea	ther-	Wo	od- d.§§	Carut		Iront	on.§§	Lam	ar.§§	Old	en.	Spring	gfield.	Bland		Jack Ter	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	68 55 57 55 54	48 48 51 52 49	68 57 60 56 00	45 54 54 53 53	58 56 55 54 54	46 38 50 50 48	65 58 61 56 59	49 54 55 53 52	59 56 56 55 56	49 53 54 53 48	55 55 56 55 55	46 47 52 52 44	55 52 53 53 56	44 48 48 46 42	71 73 63 58 67	43 43 53 50 47	60 62 60 53 54	44 42 48 48 45	53 55 56 56 53	50 47 52 49 50			56 55 55 54 52	47 47 52 50 48	67 65 61 54 61	48 46 49 48 41	70 68 61 58 67	4 3 4 4
6 7 8 9	51 45 45 50 52	38 30 22 24 26	56 47 44 53 56	42 37 25 25 30	58 47 48 50 58	38 31 22 22 22 24	53 43 44 50 54	42 35 26 24 28	51 41 44 47 53	38 28 23 27 29	49 44 45 48 56	35 28 21 24 28	43 40 48 49 55	34 28 19 26 25	67 53 49 48 58	47 40 25 19 33	59 41 40 47 58	48 39 20 15 22	54 37 42 45 52	40 30 22 21 23	******		49 43 37 43 50	42 25 21 26 31	61 53 36 43 51	49 32 22 20 29	54 42 45 55	4 22 11 20
11 12 13 14 15	55 50 52 54 56	29 29 30 29 27	62 63 48 55 61	30 35 31 42 38	56 58 56 57 58	28 28 29 30 30	56 58 50 57 56	29 35 38 31 44	55 58 50 48 49	30 37 43 33 30	56 58 48 54 55	25 25 30 28 25	57 54 51 59	23 24 35 26 22	63 63 65 53 60	27 28 29 45 39	56 57 59 54 55	24 22 26 37 30	58 54 51 55	31 36 36		*****	56 55 53 50 50	32 37 38 40 38	54 57 59 55 49	33 32 36 43 33	56 51 52 51 61	2: 4: 2: 4: 4: 4:
16 17 18 19	48 49 45 50 32	27 38 39 36 20	54 52 53 52 45	43 46 47 44 38	56 46 52 56 65	30 29 35 33 31	54 53 52 54 50	43 45 44 45 33	49 48 48 48 52 43	40 45 43 - 38 29	46 45 50 53 36	25 37 40 39 30	45 41 . 44 . 58 . 31	22 36 36 37 27	55 49 59 56 56 56	33 39 42 28 33	57 50 47 50 55	27 40 32 17 27	57 47 53 54 38	36 39 38			54 50 50 49 46	35 44 36 36 25	48 49 48 51 55	31 42 35 27 34	65 53 54 56 57	3: 3: 4: 2: 3:
21 22 23 24 25	33 35 34 33 23	19 23 15 15 18	40 36 45 40 33	31 32 26 32 31	54 35 35 35 37	22 26 6 17 19	38 38 37 37 37 36	28 32 30 30 30 32	35 30 36 36 36 30	21 27 18 30 18	34 39 35 34 31	20 21 11 11 19	37 33 31 31 29	16 21 3 3 15	50 46 41 41 39	36 36 35 33 32	38 36 35 35 34	31 30 30 31 32	34 34 32 35 27	22 22 28 29 27	******		31 33 32 33 31	24 31 28 30 20	48 41 40 39 37	34 32 35 36 34	50 50 44 45 41	2: 2: 3: 3: 3: 3:
26 27 28 29	37 33 28 31 33	14 16 20 22 22	46 39 37 39 42	26 28 33 31 26	50 49 45 42 46	19 21 22 22 22 23	36 35 35 36 35	19 25 32 32 29	39 33 37 37 40	17 29 23 23 24	36 34 39 46 39	14 16 21 19 20	34 30 43 47 33	12 16 12 17 20	41 35 36 40 36	31 32 32 32 32 29	33 34 34 35 30	24 26 29 29 29 26	35 35 34 34 31	25 30	******		29 30 31 31 29	20 22 29 26 26	34 33 34 37 33	30 30 30 32 29	36 40 38 38 38	31 32 32 33 30

50.9 28.8 48.0 36.3 45.4 33.3 46.2 28.3 45.2 26.1 52.5 35.5 46.9 31.3

Table 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 7—Continued.

		Tenne	xssee.									A	rkanse	s.										M	ississig	pi.		
ate.	Kent	on.	Mem	phis.	Beni		Dare		El l		Fo		Har	dy.	Lit		Pir Bluf		Tex		Wyn	ne.§§	Clar		Co		Gree	8II- 0.55
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
	67 69 64 59 65	38 38 43 49 43	66 68 59 60 68	51 48 53 52 52	59 56 57 54 53	46 48 52 52 43	70 62 60 56 54	43 43 56 54 54	71 70 61 58 65	43 51 52 55 55	65 60 59 57 55	47 54 54 53 47	59 62 60 58 58	41 38 52 51 48	68 65 58 57 61	47 50 55 54 50	69 69 62 59 66	44 44 48 54 54	72 68 60 60 59	41 42 55 54 54	68 70 61 59 55	45 42 54 53 52	70 71 63 64 69	44 43 48 54 54	69 70 60 60 68	44 42 42 44 44	72 72 64 62 70	44 5 5 5
} }	63 54 40 42 54	50 39 22 16 21	63 52 40 44 54	50 38 28 29 34	57 43 41 46 52	39 26 20 22 26	61 50 46 46 50	41 42 26 23 25	57 66 47 50 59	45 52 29 24 25	55 48 45 46 52	44 34 29 27 29	59 50 44 50 56	44 35 23 20 27	62 50 44 48 54	47 37 29 28 33	66 57 45 49 58	47 43 31 23 23	60 55 50 55 58	45 43 26 25 26	64 51 41 47 54	48 43 27 20 25	65 58 44 49 57	48 44 29 22 22	65 54 40 47 55	48 43 26 20 20	66 61 46 49 55	4 4 3 2 2
2 3	54 57 60 53 59	23 23 26 43 36	57 57 58 52 59	36 40 44 46 45	56 54 48 48 54	27 31 31 35 35	60 60 55 50 50	28 30 33 35 40	61 65 53 52 60	30 34 35 43 48	54 57 44 50 56	31 35 36 43 37	56 62 60 52 48	29 27 30 42 33	56 59 51 48 59	37 37 39 44 44	59 62 48 51 61	27 30 30 34 37	62 64 50 55 64	30 32 33 46 42	58 60 60 51 59	26 30 27 46 43	60 43 48 51 62	27 27 31 31 48	56 59 60 52 56	22 26 26 28 44	62 64 57 53 54	3 3 4
8 8 9	58 51 50 52 57	28 35 41 20 27	58 55 52 50 56	41 45 42 35 41	55 50 51 51 47	38 45 43 42 28	58 52 60 59 52	38 34 42 40 39	61 57 50 60 65	39 40 43 41 39	53 53 55 56 50	42 48 47 45 35	56 50 54 57 58	30 43 43 34 36	59 56 52 57 57	42 47 47 41 40	62 57 54 60 61	39 39 37 44 39	60 56 56 56 56	42 43 46 42 40	61 56 54 54 56	34 46 47 46 52	63 61 56 59 62	37 39 48 36 36	65 59 52 57 54	32 32 46 28 30	62 62 53 53 65	3 4 4 4
  	58 49 44 42 38	30 37 36 36 36 31	42 47 42 46 38	36 37 37 38 32	32 34 32 34 33	27 30 28 28 21	59 46 54 49 41	33 39 35 36 39	41 41 45 47 43	31 35 36 34 34	37 37 34 37 36	32 33 31 31 28	40 38 36 40 38	31 32 31 33 -30	40 41 40 43 40	36 34 34 33 30	46 43 40 47 42	33 33 37 31 32	43 40 49 41 38	34 33 29 30 36	40 45 51 57 36	35 34 36 34 32	46 48 42 48 38	32 33 39 32 33	47 52 42 47 34	32 31 36 38 32	49 47 45 49 42	
3	38	31 31 32 28 30	37 38 38 38 36 40	31 32 34 33 29 32	33 32 31	17 22 32 28 26 31	40 36 39 42 40	32 34 32 35 36 36	38 44 41 42 46 52	25 28 32 36 38 30	32 34 37 37 37 46	25 28 34 35 32 34	39 34 34 40 33 35	22 27 30 30 27 30	33 38 37 41 40 50	27 30 34 35 35 36	33 41 39 42 42 48	27 30 33 36 35 34	50 48 45 47 50 50	24 28 32 35 34 35	38 48 40 40 40 41	29 33 34 34 31 31	35 42 40 40 37 44	32 32 34 35 34 29	34 36 41 42 36 40	32 32 32 35 34 32	36 47 43 42 42 49	
ins	1			39.4		32.9	51.94		53.8	38.1	47.5	37.4	48.9	33.8	50.5	39.1	52.8	36. 4	54.2		52.1	37.8	52.7	36.5	51.9	34.1	54.6	3

			Missis	sippi.											1	ouisia	ma.									
Date.	Kose		Natel	nez.§§	Vicks	burg.	Alex		Bat Roug		Cov		La		La		Monr	00.§§	Ne Orle		Robel	ine.§§	Schrie	ver.§§	Shreve	eport.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5,	73 70 64 59 69	47 43 42 45 48	76 77 68 67 75	42 46 54 54 54	74 75 68 67 73	56 54 53 57 53	72 75 70 64 73	46 45 55 55 55	77 79 73 70 79	50 54 59 52 55	78 76 70 68 72	61 53 53 52 52	79 80 75 72 77	49 52 60 54 55	79 78 80 79 78	45 46 48 50 51	73 73 64 62 72	46 46 51 58 55	74 74 66 69 74	61 58 55 54 58	78 75 76 68 67	39 48 58 56 56	90 89 75 74 76	60 57 60 52 52	70 72 64 61 62	47 56 57 56 47
6 7 8 9 10	61	49 43 29 24 24	68 61 51 53 56	50 44 33 26 29	67 59 50 53 54	50 43 35 30 34	66 60 50 52 56	45 42 33 29 29	69 68 58 61 65	51 42 35 29 30	56 56 56 57 61	55 45 34 29 29	70 62 54 56 60	53 43 34 29 31	69 56 55 57 63	53 56 55 49 38	68 61 50 50 58	47 45 34 29 30	69 62 55 51 57	56 51 41 36 40	69 62 64 62 62	43 43 28 24 22	65 64 57 60 64	55 46 38 30 30	63 55 48 51 56	46 40 32 32 39
11 12 13 14 15	63 64 59 55 56	25 26 29 31 47	60 66 60 68 59	29 31 42 51 46	62 65 58 56 56	38 42 46 50 48	57 65 58 60 57	36 35 36 49 43	64 74 66 63 59	38 41 50 56 42	64 70 67 66 63	29 33 37 46 46	59 70 64 63 59	36 39 51 54 42	69 63 65 60 62	29 47 40 38 26	61 62 52 54 59	30 30 37 43 47	60 66 69 74 59	46 47 51 54 49	74 79 66 65 64	30 28 37 42 35	60 74 74 74 74 62	32 40 44 42 43	58 62 54 54 -00	36 38 46 49 43
16	58 60	36 39 47 42 34	59 66 50 58 69	43 42 43 47 41	63 62 52 54 66	39 49 46 47 40	60 62 60 59 65	42 43 42 41 43	63 75 76 55 65	43 49 46 47 49	59 73 68 50 64	46 46 50 47 47	60 72 64 57 66	43 45 48 48 49	61 60 59 61 62	27 26 26 27 25	59 58 51 61 67	41 42 45 45 41	62 72 64 57 61	51 54 53 50 52	58 55 70 69 68	38 42 35 47 38	66 77 68 58 64	44 44 50 50 48	58 60 55 56 62	45 47 44 46 42
21	53 56 47 53	34 37 38 31 31	54 53 52 54 42	42 42 34 36 38	53 54 51 55 41	40 42 39 38 36	55 52 52 52 52 42	35 40 32 32 36	67 60 62 58 46	42 46 35 38 39	58 49 41 54 40	48 46 41 40 40	61 57 55 55 46	44 45 34 35 40	61 60 51 60 59	26 27 26 25 25	52 47 53 48 43	38 38 38 37 36	64 66 53 55 48	53 49 44 46 43	75 68 65 48 50	34 35 28 34 36	70 70 62 58 50	50 49 39 39 45	48 44 47 47 41	35 37 32 39 34
26	36 47 44 40 45	32 31 32 37 37 37 32	42 54 57 48 44 51	35 32 36 38 39 32	46 51 50 41 46 51	32 31 40 38 39 36	49 50 48 48 47 50	29 29 36 38 37 34	57 54 59 48 47 57	37 35 42 41 40 34	36 56 67 44 42 41	31 32 36 44 42 38	51 59 54 50 45 56	37 33 41 40 41 31	59 60 62 60 61 66	27 28 26 28 25 27	44 47 45 42 47 47	30 29 33 38 38 38	48 56 71 49 46 51	39 39 49 44 43 43	68 49 44 48 50 58	22 29 33 38 37 28	56 62 64 48 50 60	40 35 40 43 39 32	46 46 44 44 47 50	28 34 40 37 36 85
Mns		36. 2	58.6	40. 4	57.2	42.6	57.6	39. 4	63.7	43.5	58.8	42.8	61.5	43. 1	63.7	35.2	55.8	39.7	61.4	48.7	63.7	36.9	65.8	44.1	54.4	41.1

<sup>\*,</sup> b, °, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning: the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

## DISTRICT NO. 8, TEXAS AND RIO GRANDE VALLEY.

M. SPRAGUE, Acting District Editor.

#### GENERAL SUMMARY.

The marked features of the month were the persistently cold weather in the western portion of the district and the abnormally heavy precipitation in New Mexico and in the interior of Texas. In Texas the current month was the wettest December of record, and in New Mexico the wettest with the exception of that of 1906. The excess in precipitation was general in Colorado and New Mexico, but in Texas there was a slight deficiency on the immediate coast and in a few extreme western counties, while the excess over a broad belt extending from the upper Guadalupe watershed to the middle Trinity ranged from 8 to 13 inches. In the last-named area there were 25 stations with monthly amounts of over 10 inches and 2 with more than 15 inches. Over 75 per cent of the precipitation in Texas fell during the first five days, although the skies were more or less overcast during the last two decades and light rains occurred at frequent intervals. There were two general precipitation periods in the western portion of the district, namely, between the 1st and 5th and between the 15th and 21st. The sunshine was decidedly deficient and the number of rainy days above the normal. The number of days with 0.01 inch or more of precipitation averaged 6 in Colorado, 5 in New Mexico, and 8 in Texas.

The greatest and least monthly amounts of precipitation were, respectively, in Colorado 3.02 inches at Cumbres and 0.52 inch at Manassa; in New Mexico, 4.40 inches at Tajique and 0.15 inch at Lakewood; and in Texas, 17.10 inches at San Marcos and a trace at Grand Falls. Excessive precipitation of 2.50 inches or more in 24 consecutive hours occurred at 52 stations in Texas, the greatest being 10 inches at San Marcos on the 3d-4th.

The snowfall over the upper reaches of the Rio Grande and Rio Pecos watersheds was unusually heavy. The greatest monthly fall in Colorado was 39.5 inches at Cumbres; and in New Mexico, 93.0 inches at Anchor Mine. The persistently cold weather prevented melting and the stored depth at the close of December was well above normal, averaging about 24 inches at the snowfall stations in the Rio Grande watershed and about 14 inches over the upper and middle Pecos watersheds.

The prevailing winds were westerly in Colorado and New Mexico and northerly in Texas.

### TEMPERATURE.

The average daily temperature deficiency was 5.0° in Colorado, 3.6° in New Mexico, and 2.5° in Texas. Over limited areas in south Texas the monthly mean temperatures were above the normal. The extremes of tempera-

ture were well marked in the western half of the district, but in the eastern half of Texas there was little freezing weather and no sharp changes in temperature. The first six days were abnormally warm and the highest temperatures of the month generally occurred during this period. The last decade was persistently cool, with lowest temperatures between the 20th and 26th. The average diurnal range of temperature varied from 9° on the Texas coast to 36° at some of the mountain stations in New Mexico.

The highest and lowest temperatures reported were, respectively, in Colorado 45° at Saguache on the 6th, and -30° at Hermit on the 22d; in New Mexico, 68° at Boaz on the 14th, and at Fort Stanton on the 15th, and -22° at Tres Piedras on the 22d; and in Texas, 91° at Brighton on the 2d, and 3° at Plainview on the 23d. The local monthly means ranged from 6.4° to 15.4° in Colorado, from 10.3° to 40.5° in New Mexico, and from 35.4° to 61.4° in Texas.

### PRECIPITATION.

The precipitation over the Rio Grande watershed averaged 1.51 inches, which is nearly double the normal amount. The excess was greatest over the upper watershed, while a slight deficiency occurred in Texas between Eagle Pass and Fort McIntosh.

The Rio Pecos watershed also received double the normal amount of moisture over the New Mexico portion, but there was a small deficiency in the Texas portion. The average for this drainage area was 1.15 inches.

All the Texas watersheds received more than the normal rainfall, with excesses ranging from 0.17 inch for the coastal plains to 5.22 inches for the Trinity watershed. The excess was general, except in their extreme lower portions, where there was a slight deficiency. The following are the monthly amounts in inches and hundredths for the various watersheds: Nueces, 4.06; San Antonio, 4.46; Guadalupe, 6.38; Lavaca, 3.44; Colorado, 5.08; Brazos, 6.51; Trinity, 7.66; Neches, 6.61; Sabine, 6.18; and coastal plains, 2.60.

### RIVER CONDITIONS.

Following persistent local rains during the last decade in November, which thoroughly soaked the ground, excessive precipitation over the interior and northeastern portions of Texas during the first five days in December caused unprecedented floods in the Guadalupe River, in the Colorado below Austin, and in the Brazos from Waco to the Gulf. The Trinity also was well out of its banks throughout its course, but did not reach so high a stage as

in 1908. The Sabine was out of its banks in low places, but did no material damage.

The floods crested almost simultaneously in practically all the rivers, and in many cases the water overflowed the lowlands adjacent to streams, the overflowed area being estimated as embracing about 3,000 square miles. Levees were broken, a number of towns were flooded, and about 180 persons lost their lives; while the property loss or damage amounted to over \$8,000,000.

The following table shows flood crests in the different rivers with dates of occurrence:

River.	City.	Crest.	Date.	Flood stage.
Trinity Brazos Guadalupe Colorado	Dallas	38. 4 39. 7 24. 8 27. 0	Dec. 6 Dec. 3 Dec. 7 Dec. 5	Feet. 25 22 16 18

A full account of these floods has been prepared and will probably be published in an early issue of some of the more important technical journals.

Table 1.—Climatological data for December, 1913. District No. 8, Texas and Rio Grande Valley.

			years	Temp	erature	, in	legre	es Fah	renl	nelt.	Prec	ipitation	, in in		days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy d	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind thon.	Observers.
Colorado.	C4ille	7,865	4	12. 4a		42a	24	- 23a	22	51*						24a	()a	6a	w.	V. R. Liggett.
Blanca Cumbres Garnett Hermit La Veta Pass Manassa Platoro	Costilla	10, 015 7, 576 9, 843 9, 000 7, 700 9, 675	6 20 6 3 7 6	10. 9 6. 4 11. 4	- 5.0	42 43 42	6 31 3†	- 25 - 30 - 25	22 22 22	44 57 46	3. 02 0. 71 2. 16 2. 91 0. 52 2. 83	+ 0.48	1. 28 0. 47 0. 82 1. 50 0. 36 1. 29	39. 5 8. 0 28. 2 30. 0 8. 0 38. 3	7 5 5 5 3 7	16 17 14 3 14 18	7 4 7 17 8 4	8 10 10 11 9 9	SW. nw. w. sw. sw.	Mrs. Ida M. Lively. Charles Speiser. Miss Marion Mason. Clara M. Wright. J. B. Chapman. Samuel P. Mix.
Saguache	Saguache Costilla Mineral	7,740 7,794 9,610	21 22 14	12.7	- 5.2 - 9.5 - 0.5	41	6 1 31	- 15 - 21 - 15	22 20 20	44 48 34	0.86	+ 0.39 + 0.20 + 1.82	0. 33 0. 35 1. 09	10. 1 7. 6 30. 4	6 9 11	15 16a 18	1 12a 9	15 2a 4	w. sw.	Eugene Williams. P. B. Albright. U. S. Weather Bureau.
Agricultural College Alamogordo (near) Alamogordo	Dona Ana	3,866 4,338 4,320 7,800	52 16 4 3	39.8d 38.4	- 3.1 - 1.0	61 57	3 5 3	20 19 22	30 25 25	35 28 31	1. 10 1. 56 1. 34 2. 27		0, 90 1, 03 1, 24 1, 11	T. 0 24.5	2 4 3 8	18 16 25 16	4 3 0 6	9 12 6 9	s. sw. n. sw.	New Mexico Agric, College Edward Le Breton. Agent E. P. & S. W. R. R. H. H. Brook.
Albuquerque Ancho Anchor Mine	Bernalillo Lincoln Taos	4, 960 6, 112 10, 600	37 4 2								1.06 0.80 4.33	+ 0.66	0.34 0.40 1.20	7.8 10.5 93.0		19	8	12	W.	Pitt Ross. Agent E. P. & S. W. R. R. C. H. Brigham.
Artesia Aspen Grove Ranch Batemans Ranch Berino	Rio Arribado	3,350 9,000 8,900 3,788	5 4 4 2								0.79 2.16 2.72		0.83 2.00	30. 0 31. 9	4 7 5	13 12 14	18 10	12 1 8	8. W.	Will Benson. Junius D. Maupin. John W. Bateman. J. C. McNary.
Bluewater Boaz Capitan Carlsbad	Valencia Chaves Lincoln	6,732 4,154 6,348 3,120	11 4 4 18	25. 0 37. 3		68	14	- 20 5		50	0. 47 0. 97 1. 28		0.68 0.72	3.0 6.0 19.0	4	13 21 16	10 4 11	8 6 4	SW. SW. W.	Bluewater Development Co William Horner. Agent E. P. & S. W. R. R. U. S. Reclamation Service
Carrizozo	LincolnSanta FeRio ArribaOtero	5,438 5,700 7,851 8,650 6,666	5 1 15 11 4	32.5 27.1 18.6 21.8 29.0	- 7.0 - 5.8	56 54 44 46 52	14	- 3	22 29	43 40 32 36	1.30	+ 1.58 + 1.64	0.34 1.26 1.05 0.67	5. 0 10. 9 57. 5 48. 0 13. 0	7 9 7 6	5	7 11 9 14 23	0 6 4 5 3 3	e. w. sw. nw.	Agent E. P. & S. W. R. R. Irving C. Sweet. Frank C. Johnson. Agent E. P. & S. W. R. R. Do.
Coyote	Torrence	0,272	4 4 4	30.0		54	14				1.51 0.46 1.41		0.30	7. 0 9. 0	4	21 16 20	7 12 5	3	W.	Do. Juan Vijil. W. F. Calhoun. Agent E. P. & S. W. R. R.
Clida Escondido Espanola Estancia	Otero	4,345 4,014 5,590 6,140	1 4 15 8	26.6 25.6	1	49 55		- 8 - 6	22 21	32 45	0. 29 0. 54 1. 01 0. 93	+ 0.23 + 0.32	0. 15 0. 27 0. 28 0. 36	8. 0 11. 4 14. 0	6 5	18 17 21	4 9 9	9 5 1	n. nw. w.	A. J. Evans. Agent E. P. & S. W. R. R. Mrs. E. F. McBride. Estancia Drug Co. Frank P. Davis.
Fluorine. Fort Stanton. Fort Summer. Gallinas. Gallinas Planting Sta. Glorieta Ranch. Harveys Upper Ranch.	Lincoln	3,960 6,635 7,500	36 5 4 6 3 4	30. 9 33. 8 28. 0 35. 8	- 4.9	68 57 60 57 49	14 14 31 31	- 5 14	25 21 23 20	41 † 50 22 † 38	1.50 1.34 1.96 1.13 1.10	+ 0.64 + 0.81	0, 73 0, 65 1, 00 0, 56 0, 46 0, 67	14. 5 5. 0 15. 0 14. 6 16. 0 21. 8	4 6 6 6 5 10	3 17 20 21 21 16	10 7 6 4 3 9	18 7 4 6 7 6	W. nw. nw. e. w.	U. S. Sanitarium. Peter Yocky. Agent E. P. & S. W. R. R. U. S. Forest Service. Chas. M. Crossman. R. B. Schoonmaker.
Iermosa	Sierra. Eddy. Chaves. Sandoval. Eddy. Valencia	3,800 3,904 6,100 4,300 5,840	3 8	26.7 38.6		48 59 60 45 62	15 15 1	12 2 14	22 17 22 22 22	39 28 38	1.28 1.98 1.22		. 0, 35 . 0, 96 . 0, 55 . 0, 48	25. 4 0. 2 3. 0 19. 0 T.	6	21 22 8	8 5 1 12 4	4 5 8 11 5	ne. w. s sw. nw.	W. H. MacDonald. E. H. Byers. U. S. Reclamation Service Mrs. L. L. Shields. J. W. Mosley. Gus. Weiss. P. A. Turnbull.
lagunita	Eddy Dona Ana. San Miguel. Valencia. Socorro.	3, 170 4, 156 6, 385 4, 900 6, 556	26 24 8	39.8	- 9.4 - 3.3	64	3	16	8	42	0.15 1.00 0.98	+ 0.49 + 0.35 + 0.35 + 0.37	0, 10 1, 00 0, 46 0, 30 0, 50	9.1 5.5 11.5	1 3 3 4	26 13 16 12 17	10 16 9	2 3 3 5 3 5 8	sw. n. w.	William P. Keil. Mrs. J. K. Boyd. Agent So. Pac. R. R. New Mexico Normal Univ. Richard Pohl. William Pender. Rev. R. H. Harper.
Mescalero Mineral Hill Monterey Moriarty	San Miguel	4, 436	8								2.17		0.80	2.5	6	21	3	7		. W. M. Nelson. Agent E. P. & S. W. R. F. Harry J. Fincke.
Mountainair	Otero	6,390	11 1								2.23		. 0.71		2		7 2 8	8 6 9	W.	Miss Julia Hill. Charles B. Beasley. Agent E. P. & S. W. R. H. E. Kellar.
Nogai (near) Noria Orogrande Oscura Otis	Otero Lincoln Eddy	4,115 4,171 5,016 3,100	4 4 4			62	14	21	14		. 0.85 1.19 0.89		. 0.50 . 0.66 . 0.79	T. 4.0	3 4 3	13	7	5		Eugene F. Jones. A. M. Hove.
Pastura	Guadalupe Chaves Taos Chaves Dona Ana	5,285 4,300 8,956 4,030	19	13.7	- 0.1 + 0.4	49	9	- 20 17	20 3 2 1 8	† 53 2 34 4 46	2, 40 0, 50 1, 08	+ 0.53	. 0.80 0.32 1.06	42.5	8 2 2	13 19	12 4 16	6 8 5	e. sw.	Agent E. P. & S. W. R. R. L. P. Adalr. Mrs. L. R. Penn. K. H. Embree. C. H. Raitt.
Rio Grande Dam Rio Grande Industrial School. Rosedale	Sierra Bernalillo	4,265 5,000 6,910	23 2 8	29.9		. 50	13	- 10 0	22	34	1.85		. 0.33	6.4	5	14	11 8	6 6	ne. w.	U. S. Reclamation Service Rev. A. C. Heyman. Mrs. J. J. McInness.
Roswell.  San Marcial.  San Rafael.  Santa Fe.  Santa Fe Canyon.  Santa Rosa.	Chaves. Socorro. Valencia Santa Fedo. Guadalupe.	3,578 4,454 6,509 7,013 8,000 4,624	16 16 41 3 12	25. 1 26. 4 32. 4	- 4.2 - 3.1 - 5.6 - 3.9	52 47 . 59	11 10	- 10 6	22 30 25	32	0. 62 0. 88 0. 77 1. 89	+ 0.20 + 0.24 + 0.01 + 0.84	0.40 0.32 0.24 0.65	3.9 12.5 9.7 22.0	5 12 7 4	19 19 10 13	9 3 17 14	9 4 4	nw. ne. e.	U. S. Weather Bureau. Agent A. T. & S. F. R. R Dr. C. M. Grover. Section Center. Mrs. E. M. Gregory. H. V. B. Smith. James Curry.
Senorito (near). Scoorro. Stanley. Tajique (near). Taos. Taos Canyon. Tecolote.	Socorro	4,600 6,312 9,820 6,983 8,959	21 4 3 18 4	36. 4 26. 1 21. 7 19. 2	+ 0.4	65 65 47 48	8 14 1	- 9 - 1 - 8	25 22 22	56 30 36	1. 20 0. 82 4. 40 1. 05 2. 05	+ 0.51	0.54 1.58 0.60 0.74	10.5 11.0 45.4 11.8 34.0	5 3 12 6 12	17 12 19 11	9 8 5	14 17 3 12 12	W. W. W.	J. J. Leeson. D. C. Kimsell. A. Rea. Alexander Gusdorf. L. Martinez, jr. Agent E. P. & S. W. R.
Three Rivers. Tijeras Canyon Torrance	Otero Bernalillo	4,559 6,450	3	*****							1.31		0.70	6.1	10	21 10	12	7 9	sw.	Do. U. S. Forest Service. Agent E. P. & S. W. R. I

TABLE 1 .- Climatological data for December, 1913. District No. 8-Continued.

			years	Temp	erature	, in c	legre	es Fah	renh	eit.	Prec	ipitation	, in in	ches.	days,	1	Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy day 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	N umber of cloudy days.	Prevailing wind of	Observers.
New Merico—Contd.	Taos	8,076	10	16.6		38	1+	- 22	22 26	50	1.27	+ 0.41	0.60	15.6	8	20	4	7	ne.	U. S. Forest Service.
ruchas	Rio Arriba	7,935 4,436	3	22.4		98	10	- 9	26	48		******	0.55	22.5	4	12	11	8	80.	U. S. Forest Service. Miss T. Esquibal. I. L. Fairless.
ughn	Guadalupe	5,952	4 3							49			0.90	24.4	9	19 15	5	9	8. n.	Agent E. P. & S. W. I
sylviallard	Taos Torrence San Miguel	6,086	1	28.3	- 2.8	45 57	15	- 21 - 10	22 29	43 51	0.74	*******	0.20	30.7 9.0	5 7	18	4	9	nw.	Ernest Kennedy. Dr. V. S. Cheyney. James F. Matty.
nsor	San Miguel	8,200	17	23.9	- 2.8	48	12†	2	25	41	1.56	+ 0.50	0.63	23.0	7	8	18	5	W.	James F. Matty.
Texas.	Marrian	1 700	00	42.4		70	0	04	29	27	0.07	. 0.04	0.07		8	10	9	12		TT C Wanthan Daman
ileneoany	Shackelford	1,738 1,429	28 19	40.4	- 1.6 - 3.9	70 63	13	24 15 33	26	41	2.64	+ 0.94 + 0.97	0.87 0.85	0.1	6	16	8	7	se.	U. S. Weather Bureau N. L. Bartholomew. R. M. Boerum.
one	Jim Wells	209	3	59.3		81	1†	33	31	42	1.15		0.60	0	5	12	6	13	n.	H H Cowles
vin	Brazoria	49	15	51.8		78	1	26	26	33	3. 01	- 0.07	0.90	0	6	7	8	16	n.	Alvin Japanese Nurser
ahuacgleton	Chambers	23	4	54.4		79	2	28	26	25	2.54		0.80 2.87	0	5	5	19	7	n.	Alvin Japanese Nurser Lone Star Canal Co. N. E. Winters. Paul Randolph.
telope	Jack		2 2								3.03		1.16	2.0	6	5 10 24	9	12		Paul Randolph.
permontstin	Travis.	593	57	51.4	+ 0.3	76	2	29	26†	25 34	16. 14	+13.80 + 1.77	0.88 6.34	0	14	9	10	12	n. se.	Bryant Link Co. A. Deussen. E. M. Eubank.
llinger	Runnels	1,637 2,573	17	41.9	+ 0.3 + 0.7	75 67	2 2 31	22 18	29 25†	34 47	2.90	+ 1.77	1.55 0.55	0	6	21 10	18	6	n. n.	F. P. Ingerson
y City	Ward. Matagorda. Jefferson.	53 29	3	57.1m		78	2†	33	26 27 30	25 1				0		3m 12		13m	n.	E. Q. Quereau.
eville	Bee	29 225	12 17	56.9	+ 0.9 + 2.2	79 89	2† 1 3 1	33 32 35 23 25 20	30	28 26	2.06	+ 0.33 + 0.23 + 2.18 + 6.05	2. 21 0. 65	0	6	12	1	19 18	e. n.	E. Q. Quereau. John Bender. Geo. E. Faupel.
Spring	Howard	2,396 1,350	15	43.5	-1.4 + 1.5	66 80	1 17	23	8† 26† 29	30 33	2.62	+ 2.18	1.08 4.12	T. 0	6	20 17		7 7	e. nw.	K Keagan
erne	Kendall	1, 412	21	47.0	- 2.4	75	2	20	29	35	5.82	+ 0.05 + 3.47 + 0.56	2.20	U	12	2	4 7 8 0	21	n.	R. C. Crist. F. W. Schweppe.
oth wie	Fort Bend Montague	1, 113	12 18		- 2.0	65	4	23	26	27	4, 30	+ 0.56 + 3.48	1.20 1.02	2.0	10	11 12		20 18	ne.	
azoria	Brazoria	25 801	24		2.0	79	2	23 29	26						7	12k	1 5k	3k 15	n.	Craig Anderson. Mrs. M. A. Stevens. L. W. Boyett. Mrs. B. F. Sloan. Claude Strange.
nzosenham			28	49.8	- 3.0	77	2	30	26	30	3.95 8.08	+ 4.60	4.21 3.73	0	14	13 8	3 5	18	n.	Mrs. B. F. Sloan.
dgeport	Wise	754	20				2		30	38	3.56		1.20	T.	6	8 3 12	12 11	16		Claude Strange.
ghton. ownsville	Nueces. Cameron	38	49	61.4	+ 2.4 - 0.1	91 84	2+	35 34	26	36	1.17	+ 0.70 - 0.28	1.30 0.63	0	7				n.	G. H. Ritter. U. S. Weather Bureau
ownwood	Brown	1,342 371	21					*****					• • • • • •		••••	• • • • •		• • • •		Mrs. Pearl Smith.
yan	Pecos		1								0.43		0.43	0	1	26	1 3	4		Jno. Daly, jr. W. H. Denis, J. E. Watts.
meronmona	Milam	330	5	50.1		75	1 3	27 22 30	25 27	33	6.34		1.80	0	11 9	14	50	12e	ne. n.	M. S. Spitler.
rrizo Springs	Polk Dimmit Fisher	2,100	18	54.4	- 3.6	80 65	11	30 21	30 28†	33 36	2.00	+ 2.28	1.40 1.20	0.5	3	16 19	0	15 10		M. S. Spitler. M. E. Cook. Wm. Lanius.
burne	Johnson	198	8	44.5		68	4	22	28	33	7.13	T 2.20	4.02	0	7	140		140	n.	W. S. Ownsby.
ftonleman	Coleman	671 1,710	19	47.0	+ 0.2	78	2	26	94	34	11.26 2.80	+ 1.30	4.51 1.29	0	10	11	15	12	n. n.	R. M. Jones. J. E. Stevens.
llegeport	Coleman	308	23	51.8	- 3.6 - 3.6	78 76	1	26 26	26 26	38				0	15	11 10	7	13 20	ne. n.	H. A. Clapp. Prof. G. S. Fraps. R. M. Webb.
llege portllege Stationlorado	Brazos	2,066	19	42.9	- 3.6	65	2	20	24	38	4.57	+ 9.32 + 3.83	7.54	0	4					R. M. Webb.
11m bils	Colorado	206	9 7			75		26	9	33	6.05		1.25 1.28	0	12	12 20	2 3	17	n.	Mrs. Sophie Bridge, W. T. Nabers.
rpus Christi	Comanche Nueces Navarro	20	26	58.1	+ 1.5	77	2 2	41	29	26	1.34	+ 0.02	0.49	0	7	13	11	16	n.	U. S. Weather Bureau
tulla	La Salle	445 425	24		- 3.2	1	2	27	26†	22	2.80	+ 8.38	3.77 1.70	0	12		1	17	n.	D. H. Winn. Holland Agricultural
ero	Houston	350 177	9	49.5	- 1.2 - 2.2 - 0.3 - 0.8	74	1	26 30	26 26	28 41	8.69	+ 1.90 + 4.05	2.62	0	12	12	6	13 22	n. n.	A. M. Rencher, H. R. Frobese.
llas	Dallas	466	23 24	45.0	- 2.2	67	3	23	30	44	6. 62	+ 4.05	3.83	0	7	8	12	16	nw.	U. S. Weather Bureau
nevangl Rio	Wharton Valverde	145 952	17	53.8	- 0.3	79	4 2	29 32	26 8	28	7.75	+ 4.01 + 0.16	4.70	0	6	13	1 7	22 11	n. se.	H. P. Hermansen. U. S. Weather Bureau
nton	Denion	621		22.4		00	-	22	26	29	4.33		1.69	T.	9	14	5	12	50.	T. W. Buell.
vine		653 575	10	59.0 48.9	- 0.2	80 75	3	22 33 25	26	27 29	4. 12 10. 51	+ 5.01	1.70 2.75	0	10	18	13	12 12	n. n.	M. A. Keller. J. M. B. McKnight.
lleylblin		569 1,466	17			79		21	9†	31		+ 1.81	2.75 1.08	0	8	17	2	12	nw	John W. Miller. Jno. O. Shafer.
val	Travis	820	24	49.7	- 2.5 - 3.2	78 73 85	2 2 4	28	30	30	13.09	+10.71	4.50	0	10	13	4	14	n.	J. C. Edgar.
gle Passstland	Maverick Eastland	800 1,420	36	44.6	+ 1.9	85 77	4	28 29 21	30 26	39 45	2.40	- 0.26	0.34	0	6 7	14	11	10	n. n.	Charles Tarver. James A. Beard.
na. Paso.	Jackson	71 3,762	34						22	29	2.52	+ 0.24	0.90	0	7	16	ii		nw.	E. L. Faires. U. S. Weather Bureau
furrias	Brooks,		5	60.0	- 3.0	86	3 4 2	25 29 29 25 32	26	45	0.99	1	0.37	0	3 5	12	12	7	nw.	W. A. Gardner.
itonia	Fayette	465 483	5	52. 4 47. 2		78 70	2	29 25	26 26	26 32			0.99 4.50	0	14	12	2 9	17	n. se.	Fred W. Laux. F. C. C. Carter.
rt Clark	Kinney	1,050	42	50.3	- 1.7	77	6	32	25	37	2,70	+ 1.65	2.00	0	4	20	3	8	50.	Post Hospital.
rt Davis rt McIntosh	Webb	5,000 460	34 45	60.1	+ 4.1	89	23	35	26†	45	0.63 0.82	+ 0.05 - 0.27 - 0.34	0.63 0.25	0	5 1	14	3	14	ne.	C. H. Bird. Post Hospital.
rt Stockton	Pecos	3,050 670	16 18	45.6	- 0.6 - 1.9	75 68	1	35 20 26 32	8+	42	0.35	- 0.34 + 4.20	0.35	0.1		15	13	3 15	n. nw.	H. H. Butz. U. S. Weather Bureau
wlerton	La Salle			56.6		83 74	1 2 3 2	32	26 28 26† 22 26	33	2.10		1.00	0		9	15	7	n.	W. B. Patton.
dericksburg	Gillespie	1,742	24	1 48. 2	- 1.4	74 57	2	26	26†	31	7.27	+ 5.69	2.22	0.5	3 7 5	14	8	12	n. 8.	Arthur Striegler. J. D. Brown.
nesville	Cooke	738	23	44.0	- 0.3 - 0.7	63	1	23	26	26 27	0.12	1+ 3.03	1.80	1.5	10					. B. F. Mitchell.
vestonden City	Glasscock	69	1			72	2	38	26	20	2.72	- 1.62	1.05	T.	7 4	10 21	9 2	12 8	88.	U. S. Weather Bureau C. W. Cunningham.
tesville	Coryell,	795 750	18	47.5		74	2 2	26	30 26†	26	9.10		3.60 5.05	0	8	17	2 7	12 13		. John Ryan. Prof. R. F. Young.
orgetown	Goliad	164	1		- 1.7	75		26	201	30	2.01	+12.63	0.38	0	9					. W. B. Campbell.
nzales	Gonzales	299	8								5.30 4.18		1.90	T.	11	12		19		J. M. Johnson, R. L. Gaines.
rham	McLennan	444	4					25	23		12.77		4.70	0	9	4	14	13	n.	John Gorham.
ahamand Falls	Ward		14		- 1.9	73	3	22	29	40	2.78 T.	+ 1.41	1.49 T.	T.	7	18	19	10 2		C. W. Johnson. W. A. White.
and Saline	Van Zandt	399	3								5.78		1.45	0	9	3	16	12	se.	Jas. Kirk. W. J. Crowley.
apevine	Hunt	550	23 13	45.6	-1.3 + 0.7	68	1	23 26	26 26	33	7.17 5.53	+ 4.97	3.67	1.2	8	13	0	18	n.	Mrs. L. A. Regan.
llettsville	Lavaca	235	21		+ 0.7	78	1 2	34	30	22	4.35	+ 1.82	0.88	0	12	8		18	n.	Dr. J. E. Lay. W. S. Carruthers.
rlingen	Jones Cameron	1,685	2			88	3	35	26	36	1.34		0.85	0		11	2	18	ne.	Lindsay Waters.
rper	Gillespie		. 2										1	1						. D. C. Barker.

TABLE 1 .- Climatological data for December, 1913. District No. 8-Continued.

			years	Temp	erature	, in (	degre	es Fah	renb	elt.	Prec	ipitation	, in in	hes	days,	1	Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	otal sno unmelte	Number of rainy days, 0.01 inch or more.	imber o	Number of part- ly cloudy days.	u m b e	med .	Observers.
Texas—Continued.	Donal		6										0.50							
lebbronville	Duval Waller	254	9		******						1.14 5.57		0.50 2.40	0	9	12	0	19	n.	Henry Edds. J. H. Hancock.
lendersonlewitt	Rusk	500 664	18		******						7.71 13.37	+11.07	1.50 7.86	0	8 9	10	6	15		M. Kangerga. I. H. Earle.
ico	Hamilton		2								7.81		2.15	0	7	14	0	17	8.	John A. Eakins.
illsboroondo		628 901	10	44.8		71 78	2	24 30	25 26	32	11.89 5.54	+ 8.94	4.52 2.95	0	9	14	7	10	nw.	Thompson & Campbell, H. E. Haass.
ouston	Harris	138	23	53.4	- 0.8 - 0.7	76	2 2	32	26	22	6.22	+ 4.22 + 2.45	1.52	0	9	7	10	14	nw.	U. S. Weather Bureau. W. Y. Barr.
untsville yton		400	29	48.21	- 3.6	77	2	26	26†	28 1	9.88 3.50	+ 6.35	1.60	T.	5	19	2	17 1	n. w.	W. Y. Barr. Wichita Valley R. R. C.
wett	Leon,	496	3 9	46.5	******	74	2	23	23	33	11.10		4.50	0	8	13	10	8	n.	Earle Adkisson.
nctionaufman		1,645 448	12	50.1	0.4	80 68	3†	22 27	28† 26 29 29	42	4.08 13.25	+ 3.05 + 9.72	3.00 7.53	0	3 10		11	14		Judge John S. Durst. B. J. Hubbard.
errville	Kerr	1,650	17	48.6	-0.4 + 0.5	76	2 2	23	29	23 32	5.40	+ 3.76	2.67	0	6	6 10	11	14	nw.	Robert E. Horne.
nickerbocker	Tom Green	2,050	9 16	47.0i	*****	76	2	20			2.62		0.87	T.	5	148	34	7≈		Jos. Tweedy.
opperl grange	Bosque	576 276	3						****		8.68 8.26	+ 6.27	2.50 1.62	0	8	8	8	15 16	n. nw.	T. A. Johnson. August Hermes.
mesa	Dawson	2,500	3								0.70		0.50	0	3					S D Austin
mpasas		1,026	21		- 2.4		2	23	30	35	11.30 2.05	+ 9.47	6.05	0	10 8	16	0	15	n.	Mrs. K. I. Webber. John G. Kenedy.
redo	Webb	421			******						0.84		0.25	0	8				******	Elizabeth C. Gilmore.
berty	Nueces	20 38	13	53.4		78	2	28	26	32	0.51 5.13	- 0.86	0.51	0	1 8	10	6	15	n.	Matt Cody. Mrs. Fannie Sneed.
ano	Llano	1,040	22 5	47.5	- 3.1	77	2	26	29 25	29	5.41	+ 4.17	1.93	0	10	5	20	6	ne.	E. W. Torrence.
ano Grande ng Lake	Hidalgo	86 229	8	57.2		85	1†	30	25	42	1.79 10.80		1.20	0	5 8	9	19	3 18	n.	M. D. Wardlow. Geo. W. Ellis.
ngview	Gregg	336	27	46.4	- 2.2	72	2	28	26	26	7.53	+ 3.37	2.05	0	12	9	0	22	n. nw.	C. A. Propst.
bbock	Lubbock	005	6	37.2		59	11	4	22	39	2.12		1.11	6.0	6	17	5	9	nw.	V. L. Cory.
fkin lling	Caldwell	325 418	24	50.4	- 0.1	77 75	2	24 31	26 26†	32 24	6.70	+ 5.01	1.75 2.05	0	8 16	12 10	1 6	18 15	n. n.	T. A. King. John Carter.
Gregor	McLennan	713	3								13.11		5.50	0	7	20	4	7	n.	W. H. Whitley.
Kinney		612 4,043	11 3	44.8	******		1 2	21 19	26	34	6.09	+ 2.28	2.60	T.	10 2	8	10	17	nw.	H. Killingsworth. Rev. A. P. Willis.
rble Falls	Burnett	771	5	20.0				18		90	11.46		5.61	0	7	14	0	17	3. W.	M. M. Berry.
rfa	Presidio	975	5	47.0		71			000	91	0.45	1 1 07	0.45	0	1					W. L. Jones.
rshalltagorda		375 12	12	47.2		71	2	25	26	31	6.23	+ 1.37	1.09	0	11 9	3 13	11 7	17	n. n.	Lee Scott. W. E. McNabb.
xia	Limestone	537	9	45.7		70	2	25	26	26	11.08		4.35	0	12	5	11	15	е.	Isidore Newman.
ont Belvieu	Chambers	65	3				****	*****			4.40		1.57	0	6 9	8 13	12	11	n. n.	A. R. Shearer. A. G. Beecroft.
ount Blanco	Crosby	2,750	24	36.6	- 4.7	57	4	8	22	33	1.35	+ 0.74	0.50	3.0	5	16	7	8	nw.	Geo. W. Smith.
acogdochesew Braunfels	Nacogdoches	271 720	14 24	46, 4	- 4.7 - 1.9 - 1.9 - 1.6	72 78	11	25 31	26 26†	29 24	6.44 8.12	+ 0.74 + 2.13 + 5.85 + 7.21	1.52	0	8	10	5 9	16	n.	Miss Mary Hofmann. J. Giesecke.
lestine		510	31	47.8	- 1.6	71	1	28	26	25	10.88	+ 7.21	4. 20 5. 37	0	10	6	10	15	n. nw.	U. S. Weather Bureau.
inter	Hood	1,000	24								4.62	+ 2.71	1.45	0	9	****			******	E. H. Snyder.
earsall		629	3	41.5		65	19	20	251	40	3.77 0.55		2.07	0	10	22	1	8	n.	Earnest De Vilbiss. J. M. Thomson.
erce	Wharton	102	7	57.6	******	80	3	39	26	24	4.06		0.94	0	11	10	0	21	n.	R. B. Pointer.
ainview rt Lavaca	Hale	3,370	17		- 6.5	62	10	3	23	36	1.76	+ 1.23	0.76	6.0	7	13	10	8	n.	B. O. Brown.
st	Garza	2,700	3								1,66	******	0.51	1.0	8	****			******	J. H. Bickford. W. T. Mann. S. M. Davis.
tnamymondville		1,591	2 2	50 8		87	3	30	26	43	3.72 2.52		1.55	0	5	5	13	19	******	S. M. Davis. C. H. Pease.
cardo	Nueces	57	4	58.4		84	3	29	26	45	0.90		0.50	0	8	11	4	13		J. S. Lehman.
o Grande	Starr	100	36									+ 0.73	0.50	0	5	5	11	15	n.	D. N. Garza.
verside ockland			9		******	****		*****			9.82		3.50	0	7 7	15	111	15	n. n.	Mrs. C. W. Higdon. Mack Dunkin.
ekport **	Aransas	12	12	57.8	+ 0.4	77	2	40		22 32	1.49		0.30	0	8	11	5	15	n.	Mrs. G. B. Grewe.
nge	Karnes	558 308	18	52.8	******	79	1	30	23	32	4.89	+ 0.95	1.60	0	12	18	6	7	ne.	W. F. M. Ross. Reiffert & Frobese.
binal	Uvalde	964	9	52.8	******	80	2	30	26	29	4.31		2.85	0	10	12	7	12	86.	H. W. Reily.
lado n Angelo	Bell	1,847	22	48 70	+ 2.6	72	9	25	71	33=	12.12	+ 0.82	5.90	0	7 4	12 8m	91			L. M. Crockett. Sam Crowther.
n Antonio	Bexar	701	28	52.4	- 0.7	78	2 2 4	32	26	24	4. 47	+ 2.91	2.19	0	10	12	4	15		U. S. Weather Bureau.
n Augustine n Juanito	San Augustine	360	4	48.4		75   87	2	32 23 31	26 26 25 30	32 38	4.61		1.20	0	10	8 7	6	17		F. A. Wilson. J. B. McAllen.
n Marcos	Havs	558	20	49.6	- 0.9	76	2	28	30	31	17.10	+15.31	10.00	0	9	14	0		n. n.	Miss L. C. Ford.
n Saba	San Saba	1,712	12	47.0	- 1.4	76		28 22	29	32	3.58	+ 2.73	0.97	0	10	13	13	5	n.	Jas. Burns.
nta Gertrudes		201	13			****		******	****		1.10	- 0.27	1.10	0	1 14	8	6	17	n.	J. B. Wright, jr. O. H. Albert.
ymour	Baylor	1,320	-	43.0		69	31	22	29		2.91		0.70	0.1	7	20	2	9	n.	T. J. North.
yder merville	Scurry	251	2		******	68	301	19	22	45	3.05			1.2	8	21	7	3	n.	Olin F. Hardy. Ed. Herbst.
lora	Sutton	2,200	9	47.84		75	2	23	30	37	1.00		0.50	0	3	16			n.	C. R. Myers.
mford	Dickens	2,300	2	38.9		62	4	10	221		2.25			2.8 T.	9 5	19	6		nw.	J. D. Reagan. W. I. Pratt.
garland	Fort Bend	79	12	50.8	- 3.0	00	1	22 31	24	28	6.99	+ 3.70	1.21	1.			14	0,		Paul C. Rudat.
therland Springs	Wilson	424	3								6.72	******	3.40	0	6					W. W. Craft.
hokaylor	Lynn Williamson	583	12	48.8	- 1.8	59 76	11 2	28	30	37 23	1.02	+ 9.12	6,62	2.5	8	14	11	12	ne.	H. C. Crie. U. S. Weather Bureau.
ague	Freestone										13.32		5.26	0	9	8 9	9	13		E. Kuykendall.
mple	Bell	630	23		- 0.9	74	2	28	261	23	11.16	+ 8.23	4. 43	0	11	13	8	10		W. Goodrich Jones. J. K. Ball.
voli	Erath		3								1.60		0.62	0	6					W. H. Gisler.
oup	Smith	407		46.9		72	1	26	26	30	7.86		2.48	0	9	9	5	17	80.	W. S. Hotchkiss.
aldelley Junction	Uvalde Robertson	937 289	18	54.4	******	82	2	27	30	36	2.73	+ 1.56	1.80	0	6	14	9	8		J. G. McBride. Frank Fitzpatrick.
ctoria	Victoria	187	14	55.1	- 1.4	80	21	31	27	33	2.65	+ 0.43	0.45	0	7	12	0	19	n.	C. C. Zirjacks.
axahachie	McLennan	424 556	24 16	45.2	- 1.4 - 5.7 + 1.6 - 3.1	71 71	2	30	261	39	11.76 9.05	+ 9.26 + 6.57	5.40	0	9	11 23	0	20		A. E. Howell.
ABBUMIO	Ellis Parker	864	24	43.2	- 3.1	65	4	22 23	26	27	4.20	+ 0.57	1. 25	1.0	6 7	17	1	13	n. s.	W. A. Ownby. Miss J. Stickfort.
atherford	Van Zandt	524				85	1	24	29	33						7	14			W. W. Gibbard. Ed. P. Eason.

\*, b, \*, atc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry built; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

Table 2.—Daily precipitation for December, 1913. District No. 8, Texas and Rio Grande Valley.

Stations.	Watershed.	-		1	-		1	I	1			-		,		,		onth			-	1 1				1.	1			!			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado.																																	
anca	Rio Grande.																																
mbres	do	1.28	.05	T.	1.20	.11											T.	T.	T. T.	. 16		Т.		. 19 T.	Т.		T.					T.	3
ormit	do	.52	T.	.60	.82	T.							70				. 20	T.	T.	. 02				T.			T.				T.		. 2
Veta Pass	do	. 30		T.	1.50	.72	. 18				****		Т.							Т.				T.				T.					0
storo	do	.34	T.	. 28	1.29	. 26											T.		T	48				. 03			. 13				T.	****	2
guache n Luis	do	.01		. 10	. 35	.35	.02											. 05				T.	.02	T.	.01		. 04	.01					. 0
agon Wheel Gap, Experiment Sta.	do	. 59	. 02	. 66	. 67	.01											. 03	. 03	. 47	••••	****			. 05		. 05	. 07	****			T.	****	2
New Mexico.																																	
ricultural College. amogordo (near).	Rio Grande.															.90	. 20																1
mogordo (near).	do				****	T.					****				****	*	1.24					.11								T.			
mogordo mos Ranch	do	.31		. 21	1.11											*	. 16			. 10		. 16		.04			. 18						
ouquerque	do															.04	. 20				.16	.40											
chor Mine	do	.31	. 27	1.20	.80	.30										T.	****	.05			.70				. 40					.30			
esia en Grove Ranch		. 42		. 11	. 83	. 17									Inna.	T.			. 23					.11		. 29							
emans Ranch		. 41		.07	2.00	T.											T.	. 03				T.	. 21			T.	T.				T.		-
ino	do	T.	T.													T.	T.						.47				T.						
Z	Pecos				.11											. 01	. 68	. 02		.01		. 13	. 01										
itansbad	do																														****		
rizozo	Rio Grande							1									T.		T.			T.	. 40								T.		
rillos (near) ma idcroft	do	.45	T.		1. 26	. 48	****		****	****	****	****	****	****	****	****	771	07	PER S	26				.50		.36	. 18				.07	T.	
ideroft	Pecosdo				. 40	.30										1.05						.84		. 24			. 12			. 28			
onaote	Rio Grande.	****			. 67			****		****		****		****		* T.						.31					****	.02		T.	****	****	1
diyo	do				.30	. 10											****			.03		.03											
monstration arm.	Pecos								****											****						****			****				-
an	do			.04	.01												. 64																
aondido	Rio Grande.															.14	15										1						
anola	do	T.		*	.10	. 27										T.	T.			. 05		. 05						.07					
ncia orine	do	01	T.	. 24	· · · ·											. 15	.10			T.	. 28 T.	. 24		T	10	****	T.	T.	****		TP.		
Stanton	Pecos			Ac	. 20												. 52					.73			.05			1000		1			
t Sumner	do	T.	. 04		.41	T.										. 15					*	1.00	T.		T.								-
linas Planting	do	. 15		. 03	.56	.10											. 14			. 13		. 12	• • • •		****							****	-
rieta Ranch vey's Upper anch.	Rio Grande. Pecos	.09	T.	.10	. 67	.08										. 46	. 26					.37	.36		.02		.06	.03			****	****	
mosa	Rio Grande.				T.											. 42						1.01			. 14		2000			T.			
obs ado, Reservoir	Pecosdo		****	. 02	. 35		****							****	****	T.	. 35			****		.03	.05				****		****			****	
ez Springs	Rio Grande.	.40	.10		. 55	.34										*	. 16				*	. 43 T.				T.							
wles (near)	Pecos Rio Grande.		T.	. 40	. 28																****												
unita	Pecos																																
e Valley ewood	Rio Grande. Pecos			20	10				-		1					*	.97				*	. 42		.01					****	. 02	****	****	
ark	Rio Grande.																1.00																
Vegas Lunas (near)	Rio Grande.		T.	T.	.31		****									T.	21					. 46				****		T.	****			****	
dalena	do		T.	T.	.04											. 10	. 50				T.	. 48					A.	T.					1
caleroeral Hill	Pecos				. 22	. 05										T.	. 65							.10						. 33		****	1
terey	Rio Grande.				.10	T.											.80					. 50		.17						. 20			ŀ
artyntainair	do			. 30																		.80											1
ntain Park	do				. 06	.01	.08										.71	.32				.24	. 21	T.	.27						.33		
manal (near)	Pecos			T	46		****									1.20					****	61		.15			T.	14		T.	****	****	1
18	Rio Grande.																																٦.
rande	do															. 25	. 50													T.			-
· · · · · · · · · · · · · · · · · · ·	Pecos			. 10												T.	.79	T.		T.		T.								T.			
nview (near)	do			T.	. 45												. 60				T.	. 65											
River Canvon.	Rio Grande.			*	.80	. 40	.10															. 20	. 20	.30		.40							
land	Pecos Rio Grande.															1.06	.18					.32						****	T.				1
Grande Dam	do															.35	.73					.34											
	do	. 08		T.		. 29											. 22		T.			. 33					. 02	****				****	-
dale	do	T.			. 15											1.15				T.		.35		.10				T.					
well	Pecos			. 03	.08											.06	.61					. 04								.06	1		-
Marcial Rafael	Rio Grande.				. 16	****	****	****	****		****	••••	****		.32	.40						.30					T.	. 03			T.		
a Fe	do	. 01	. 01	. 01	. 24	. 04										.01	. 05	T.	.10	.03		.12		. 13			.07	T.					
a Fe Canyon a Rosa	Pecos	T.		T.	. 65	. 42					****				****		. 61	. 03		. 12		.23											1
iorito (near)	Rio Grande.																																-
orro	do		. 20	.05												. 37						. 54		100			.06						-
que (near)	do	05	11	31	1 58	70										T	32	12		ng.	11	60	1.5	T				27	1	T.	1		3
S	do	.04	****	70	.60	T.											T	.06	19			. 10		T.		. 20	T.	. 05					-
s Canyon olote	do	. 10	.08	T.	.08	.04	.05									.12	.24	.03	.13		. 21	.36	. 00	.07				. 04					
ee Rivers	do				. 05												.70				T.	.36		.17	·		70			2	0		
ras Canyon	Pecos	.01	. 13	T.												.01	. 16	. 11		1 4	1 4.	1 14		. 41			1 4 .	1 . 01					*

TABLE 2 .- Daily precipitation for December, 1913. District No. 8-Continued.

64-44	W. A A														1	Day	of mo	nth.														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
New Mexico—Con.	9																															
es Piedras	Rio Grande.					. 20														. 10		.01		. 05			.01	.05				
ichaslarosa	do				. 55	.39							••••							. 21	.15											
ughn	Pecos			.08													.32				.07	. 90										
sylviallard	Rio Grande.	.16	.07	T.	.16	1.54							• • • •				.08	. 05	. 05			T.	.20	• • • •	. 12			T.				
nsors	Pecos	.16	T.	T.	. 63	. 21											T.			. 24	••••	. 18		. 07			T.				. 07	
Texas.																																
leneany	Brazosdo	.01	.05	.49	.83								T.	.01			. 65	. 01		· T		T.	.02									
00	Coast		.15			. 18						. 60	. 12	. 10																		
ine	Pecos	1			00	10					(30)			49			PRIN	1.0							45			99				1
huac	do Trinity					.34								.40	.39										.80				. 61			
gletontelope	Trinity	79	27	7	1 16	. 33					T.	.09	T.	2.87	T	49	T.	T.				T.	.08		. 18			T.	.87			
Delmont	Brazos Colorado		.88	.81	.50												. 63															
stinlinger [ ]	Colorado	. 06	1.85	6.34	1.55	1.50					. 13		. 06	. 08	.01		1.01	. 12				T.	T.		. 02			. 43				
stow	Pecos															. 55																
City	Colorado						20					T	• • • •		2 21			.06				.07	T.			. 27		. 69				
ville	Coast			. 20		. 41	T.				.01	. 65	. 31	.08	. 01		T.	. 16			••••	70	.01		T.			.16	.06			
Springnco	Coast	.04	1.08	. 65	4.12	. 65						. 24		.03			.40	. 48				Т.	.10			****		****	****	****		
erne	San Antonio.	1.10	. 63	2.20	.78					.04	.14	.02	. 33	. 04	T.	. 04	. 48					.02										
rio	Trinity		51	1 09	65	76	.00							25	. 90		. 10	61	****	****				. 13		. 59			. 70			
zoria	Brazosdodo																															
nham	ob		. 16	.42	$\frac{1.00}{3.73}$	. 50	.05				T	.10	.02	. 40	T.		. 10	. 40					. 15		. 15	. 63		. 05	.95			
dgeport	Trinity Coast Rio Grande.			1.20	. 66	. 56						1 00		. 45	000			. 46				. 23										
ghtonwnsville	Rio Grande.				. 05	. 23				T.	.06	. 58	. 04		.31	. 11	.34	.02	T.	T.					T.			. 08				
wnwood	Colorado					Total Control					1																					
anna Vista	Brazos Pecos Brazos			T.											.43						****							****				
neron	Brazos	. 62	4.09	4.29	. 97					.01			. 58	.01	T.		. 56					.17	T.	T.			.04	.71				
monarizo Springs	Neches Nueces Brazos	T.	.01	. 40	1.40	.20					.40		.20	T.	1.	T.	T.															
gtonville	Brazos	T.	1.20	. 62	.73	T.											.70	. 05					. 05									
ton	do	. 04	4. 51	3.38	.82	.70							T.	.39			. 54	.06					. 57		.25				T.			
eman	Colorado	. 25	. 12	1, 20	- 57									. 05			. 45					. 07										
lege Station	Coast Brazos	T.	.20	1.39	7.54	.75	T,				.03		.01	.24	.01	****	.00	. 66	T.				.30		. 53			.79	. 11	.01		
	Colorado																	60					34		25	80			68			
nanche	Brazos Coast	. 10	1.00	.01	1.28	. 35					1.	.02					. 55					. 20										
pus Christi	Coast	T.		T.	T.	. 07	17			T.	. 34	. 11	. 49	T.	45	. 12	. 13	67		T.						.21		.08				
ulla	Ninones				1 70						.20	.40	.20				.30															
ekett	Trinity Guadalupe		.02	1.18	2.62	.97						69		. 81		Tr.	. 03	- 87					.36		. 34	.00		1.05				
las II	Trinity	T.	3.83	.54	1.05	.11								. 38	T.		.31		T.	T.	T.		. 40		T.			T.	T.			
nevang	Coast				4.70	. 75					. 15			1.20									.01					. 40				
nton	Trinity		1.69	. 10	.47	. 63								. 39			. 50	. 05				T.	. 47								. 03	
vine	Nueces	. 12	. 10	. 15	1.70	.90					. 50	T.	.15	1 65	T.		.50						.48		.38							
ley	Neches Nueces			2.75	2. 20						.50		. 25				. 15															
blin   val	Brazos Colorado		. 11	. 81	1.08 2.78	.61								. 21			. 14	. 00				. 09			T.			. 23				
gle Pass	Rio Grande.				.34						. 11		. 02	.03		. 08	. 05															
tland II	Brazos		.30	.55		. 30							. 20			. 20	.10	.30			. 16	****	****		. 10			.00			1	
Paso	Rio Grande.				T.											. 52	. 19					. 05								T.		
furriastonia	Guadalupe	T.	T. 36	T.	T.					- 20	-43	T.	. 15	.06	T.	T.	.37						. 05		.70			.50				
nt	Neches		T.	4.50	T.	.90								- 62	T.		*	.57					. 59			. 10		*				. 02
rt Clark []	Rio Grande. Pecos				2.00		****		****	****						****	. 30					****										
rt McIntosh	Rio Grande.										. 25	. 03				. 20	.14					****										
t Stockton t Worth	Pecos	.01	2.53	.51	1. 16	.02							.01	.24				T.				.09	. 29		.02			T.				
vlerton	Nueces				.80						1.00					.30						. 21										
dericksburg	Colorado		. 40	.50							Т.						.41			****		.05										
nesvilleveston	Trinity	.03	1.80	. 81	.30	. 53								. 61	.03		. 36	. 15			T.	.04	. 49 T.		50			. 15	. 16		T.	. 04
den City	Colorado		1.52	.56	.06	.21					1.	Т.					.58					T.										
esville	Brazos		3.60	2.40	. 90 5. 05	. 65								. 30	.02		. 65	. 65								. 02		. 05				
rgetown	San Antonio		. 20	. 18	.21	. 16					. 38	. 17					. 21											. 16				
zales II	Guadalupe		. 30	1.90	1.05	. 20						. 67	. 22				. 28	. 55			****	.09							. 22			
ham []	Brazosdo	2. 25	4.70	3.37	.90								. 25	. 13			. 55					. 40		. 22								
hamnd Falls	Pecos	.51	. 28	. 11	1.49	. 15										T.				****						****	****	****	****			****
nd Saline	Sabine	T.	. 68	1.45	. 69	1.14								.30			. 26						. 80	T.	.36	T.			T.			
pevine	Trinity		3.67		. 52	1.00								. 25		• • • •	. 48	т				. 25	. 45			. 20						
lettsville	Lavaca	T.	. 25	. 45	. 42	. 26					.51		. 15	. 16				. 20	. 26				. 13		. 88			. 68				
nlinlingen	Brazos		. 75	. 75	. 85												.50			.01												
per	Colorado Brazos									.01																						
kell []			9 00	9.00	80	20									1			KK			1		.10		1						1	1

TABLE 2.—Daily precipitation for December, 1913. District No. 8—Continued.

Stations.	Watershed.															Day	of m	onth	•		-								1	VIII		3
Stations.	Wavergueu.	1	2	3	4	5	6	7.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
eras—Continued.						æ																										
nderson	Neches		0.00	1.40	1.50	.46								1. 45			. 50	T.					.58									
witt	Brazosdo	2, 15	2. 22 1. 39	. 61	1.44	1.44					***		.23	. 52		****	.38	. 14	****	****	••••	• • • •	. 30							****		
lsboro	do	1.65	4 59	9 27	1 46					1			21	. 10			. 68					.57			.23							
ndo	Nueces	m.	.20	.06	2.95	1.00					TP	. 46	70	1.52			.08	.42		• • • •		01	.10		1 97			1 01				
ustonntsville	Coast		T.		4. 40	1.90	T.												T.	. 30	1.30	.01							1.98			
ton	Hragos		11 60	1.10		80			1		1	1																				
rett	Trinity		3.00	1.50	4. 50	1.25			****			T.	. 60		. 15	****	50				••••				T.	. 70	****	1.00		****	****	
ufman	Trinity		1.90	7.53	1.57								Inne	. 35			47															
rrville	Guadalupe		. 66 . 45	2.67	1. 12	. 60							m	. 18		· · · · ·					••••	m	. 17									
ickerbocker	Colorado Brazos		1.70	2.50	1.64	1.74							A.	. 15	.10	1.	.02	.60	****			1.	.25	****			****					
range	Colorado	.02	.56	1.62	1.44	1.00	1.00										*	1.40					. 12		. 43			. 67				
mesa	Brazos		.08	. 12	1 07	1 09																			10					****		
npasas	Coast		0.00	1.07	1.07	1.03				.30	. 58	.10	.10			. 35	.10						. 23		.50			.06		****		****
	Coast Rio Grande.		.01		.01					. 20	. 23	1 . 20	. Uo			. Ub	.06															
erty	Coast			T		23	99					.51	****	99	1 99	****	T.						т.	.30		70		****	1.14			
no	Colorado		1.68	. 73	1.93	. 34	T.				. 02	5		. 09	T.	T.	. 06	. 25					.17		.11							
no Grande [ ]	Rio Grande. Trinity			. 15						.10	1.20	10				. 24	T.	T.	T.	T.		T.	. 20		100	1 00						
ng Lake	Trinity	****		2. 20	2.05	1.36	.20		****					.40	.70			.50					. 20	.40	T.	. 50			70			08
DDOCK	Brazos	. 04	. 04	. 18	. 43		T.			T.							1.11		T.			.32					T.					
kin	Neches		.07		1.45	. 80								1.22		****		.77					. 24			. 40		1.75		****		
ing   Gregor	Guadalupe Brazos		4.45	5, 50	1.10	. 65			****	.28	.08	. 50	.06	. 15	.03	.55	. 02	. 65					.00	.58	. 13	. 10		.00	. 40			
Kinney	Trinity	T.	2.60	. 25	.80	. 86								. 44			. 38	. 14					. 44		. 08							. 10
rathon	Rio Grande.		5. 61								·				· · · ·	T.	. 24	.36		. 01				70								
ble Falls	Colorado Rio Grando	T.	5. 61	2.00	2. 51	. 60				****	T.			. 10	T.		45	. 36	• • • • •	T.	•	. 23	••••		••••	****				****	****	
shall	Sabine		T.	1.02	1.09	.72								.90	.09			. 43	T.				. 46		. 03			. 67	.76			. 06
agorda	Coast Brazos		10	4 98	20	1 49		••••		.11					91							. 02	. 02		. 05			. 01				
da	Colorado		. 10	4. 30	2. 10	1.43	.00								.31		••••	. 67		****	••••		. 20									
sion	Rio Grande.																															
at Belvieu	Coast					. 41																	****		1.03			. 29	.71			
	Nueces Brazos		. 05	. 15	2. 80	. 40											T.	.50		****		.30										
eogdoches	Neches			T.	1.52	. 77	.30							T.	. 64			.74				1	3.5	.32				T.	2,00	N		
v Braunfels	Guadalupe Trinity	.20	.37	. 73	4. 20	. 94			****				.11	2000			. 61	08				T	. 07		. 25	T		1 12	****			
iter	Brazos	.03	1. 45	1.00	1. 29	. 98							.05	. 75			. 48	.00				.20	. 06	****	T.			1. 12				
rsall	Nueces	. 05	. 08	2.07	. 35						.72	. 05	. 10			.02	.28							. 05						****		
os	Pecos Colorado		. 15	. 12	. 16	. 67	14		****		****	48		25	.09																	
nview			. 07										****					T.				. 45	. 15									
t Lavaca																																
nam	Brazosdo				. 20	. 10	. 03								95			.51	. 05													
mondville	Coast	. 30	1.00		1.00	T.				. 05	.22	1.73	.11		. 20		.27	.06			T.		. 05									
ardo	do				T.	T.				T.	T.	.50	.11 .10 .10				.30	T.										T.				
					2 50	1.80	• • • •			. 30	.50	.50	. 10	• • • • •	.30		. 10	1.20	••••				.50	T			• • • • •		1.72			
kland						. 83	. 65	. 40							1.10			.50						.23					. 85			
kport	Coast			. 10		.26					.30		.30				.20						.02		. 25			. 06				
sville	Nueces San Antonio	. 12	. 25	. 22	1.60	. 56					1.01		.20	• • • •		.02	.37	26					.00	••••			• • • •					
inal	Nueces	.30	. 40	.05	2. 85	. 22							.10	.06		.10							.09									
do	Brazos		2. 67	5. 90	1.50	1. 15																										
Angelo	Colorado San Antonio	. 15		. 69	.51	. 83		• • • •	••••		34	• • • • •	.19	т.		T.	.60			• • • • •			.07	• • • • •	.02							
Augustine	Neches		T.	. 0211	1. 201	.50								. 56	.06			. 49					. 25		. 22			. 35	. 96			T.
Juanito	Coast	. 05	2.00	. 08						. 14	1. 32	.36	. 06				. 26								95							
Marcos II	Guadalupe Colorado	.05	. 97	44	00.00	61		• • • •			. 20		. 25	. 19			. 75					****	.16		. 07	• • • •		. 10		• • • • •		
ta Gertrudes [ ] .	Coast	. 00			. 00						1. 10																					
У	Brazos		. 14	. 11	. 99	.28					. 04	.21	. 02	. 53			. 07	. 48					.07		1.05			. 83	. 02			***
mour	do		. 65	. 30	. 70	. 50							.35	00			34	10				***	.01	****							****	
erville	Brazos		1.02			. 14								.00																1. 4.		
ora	Brazos Rio Grande. Brazos.		****	. 25	.50											T.	. 25			!			10		· cr							
nford	Brazosdo		1.21	. 33	.34	. 10	• • • •		• • • •					.03			. 60	.20		T,	• • • •	T T	.18		Т.	••••		****				
arland	do			. 00	. 03				****								.09						. 10									
nerland Springs.	San Antonio			3.40	. 60					1.06								.70									. 15				· in	
lor	do.	. 03	2. 25	5.60	1 83	30	• • • •			T	.04	****	.06	.39		T.	. 60	. 02				. 20	. 05		T			. 45			T.	
rueeur	do		3.35	5, 26 1	1.17	. 00								. 92			. 93					. 46			. 40			.74				
IDIA III	do 1	1	1.004	4. 4.315	2 03	1 40	03	3			. 02			. 40	. 05			.50					. 26		. 14							
rber oli ip	Guadalumo			179	• • • •		• • • •				10		. 62				33						• • • • •		15			****		****		
ip	Neches			1. 98	2. 48	. 84	****				. 18		. 02	, 95	. 01								. 44		.35	T.		. 79	.02			T.
ICIO	Nueces	. UOI			L. (U)	. 10					.40			, 20			.28															
ey Junction	Brazos			40	22	***								95			40							22			• • • • •					
20 11	Brazos		1. 42	2,00	5, 40	1,00	****		****		. 45		****	. 30	.14		. 42	.70	****				.40	. 23	T.	.40			T.			
co	Brazos. Guadalupe Brazos. Trinity		1. 85	3. 40	1.55	1.40								- 55				.30					.37									
therford	do Sabine Colorado		.30	1.25	. 69	. 65																	. 68					T.				
ls Point																																

<sup>\*</sup> Precipitation included in that of the next measurement.

\$ Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.

Precipitation is less than 0.01 inch rain or malted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 8, Texas and Rio Grande Valley.

		Colo	rado.								Ne	w Mex	cieo.											Tex	as.			
Date.	Gara	nett.	San I	ouis.	Agri tu Coll	ral	Carls	bad.	Fo	ort iton.	Mour		Rose	dale.	Rosv	vell.	Santa	Fe.	San		Abil	ene.	Bi Spri		Brov		Corr	
	Max.	Min.	Max	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	40 39 39 33 36	21 6 15 19 7	41 32 40 35 29	23 5 14 24 18	53 58 62 46 51	34 24 31 33 32			64 58 60 48 52	24 21 28 25 18	42 38 42 38 35	26 19 22 20 20			60 53 44 52 50	36 34 39 34 32	41 37 42 41 30	27 22 27 27 22 21	55 44 39 44 45	29 21 35 34 2	60 70 61 67 54	46 58 54 52 42	66 64 56 63 58	51 53 51 50 48	82 84 84 80 79	71 73 72 71 59	76 77 75 76 74	71 74 73 72 54
6 7 8 9	42 29 30 27 24	18 - 5 - 9 -11 -12	39 35 29 28 30	22 - 4 -12 - 7 -14	57 55 52 49 57	21 24 23 22 28			50 45 54	16 15 12 11 12	46 43 43 42 48	19 22 20 20 20 22		****	56 48 47 47 53	32 29 21 21 23	41 40 42 37 47	22 18 18 20 18	52 42 48 48 52	30 22 20 20 20 20	52 45 45 47 56	42 30 25 28 37	54 44 44 46 58	38 32 23 27 32	75 65 63 54 54	53 48 42 49 47	72 58 53 56 55	52 50 46 49 46
11 12 13 14 15	24 25 29 25 26	-15 -16 -15 -16 - 9	32 27 28 28 28 26	-16 -17 -12 -15 -12	57 57 60 59 40	29 22 25 25 25 31			58 55 59	8 11 14 16 18	46 48 50 49 36	22 23 20 21 25			56 56 58 54 41	22 22 22 22 22 23	37 36 36 47 45	19 17 18 15 21	55 50 50 59 44	17 17 19 22 16	56 57 60 56 47	31 36 39 33 29	58 57 59 58 48	28 32 44 32 27	58 64 74 70 68	47 55 54 59 54	59 64 69 63 59	48 53 61 56 52
16 17 18 19 20	36 32 27 29 15	7 9 9 3 -21	29 31 34 35 16	1 14 3 11 -21	46 40 48 54 52	35 30 29 29 29	*****		47 49 40 40 35	15 13 5 13 11	38 44 45 42 34	27 18 19 25 19			37 34 35 51 45	28 23 24 30 30	32 37 38 28 29	27 25 21 16 11	40 37 42 40 31	31 17 11 22 21	49 52 47 57 48	43 36 33 41 34	45 55 48 58 58	39 32 31 40 32	74 68 67 62 72	56 58 58 56 57	59 62 58 61 67	54 56 51 54 55
21 22 23 24 25	11 15 22 19 22	-20 -25 -14 -12 -17	10 20 27 24 20	-16 -19 - 8 - 6 -19	47 42 52 46 47	35 22 24 23 23			38 40 40 41 42	14 6 7 6 4	38 34 38 38 36	20 0 15 15 8			45 50 43	23 15 24 26 18	20 22 26 26 31	10 8 15 9 6	27 32 40 39 37	23 3 19 20 8	37 40 56 45 41	30 28 29 29 29 27	43 44 60 42 44	31 26 29 27 23	68 68 72 75 60	57 52 43 60 40	55 64 62 67 54	48 50 52 51 42
26 27 28 29 30 31	29 23 26 20 19 29	- 6 - 2 -14 -18 -16 - 8	23 30 24 27 24 30	5 6 -14 -15 -10 - 5	56 52 50 53 55 57	24 22 25 32 20 24			45 46 40 34 46 56	7 9 - 2 4 13 28	43 36 38 38 43 47	12 18 14 13 12 22	******		54 44 51 35 52 60	23 29 21 21 24 38	34 31 33 37 34 37	15 15 12 12 12 14 23	42 43 43 42 41 48	21 24 20 15 20 26	52 44 47 50 54 49	28 30 26 24 34 36	58 48 52 54 58 55	30 29 24 24 32 32	70 73 68 63 63 77	34 60 50 40 40 41	62 68 55 53 56 69	47 58 44 41 42 43
Mns	27.2	-5.4	28.5	-3.1	51.9	26.8			48.8	13.0	41.2	18.6			47.9	26.1	35.3	17.5	43.6	21.1	51.6	35, 2	53.2	33.8	69.5	53.4	63.2	53. (

														l'exas														
Date.	Del	Rio.	El F	aso.	Fe MeIn	ort itosh.		ort kton.	Fo Wo		Galve	eston.	Halle		Hous	ton.	Lufi	rin.	Pales	tine.	Plain	view.	San		Seym	our.	Tay	ior.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 3 4 5	78 75 65	56 62 65 57 47	54 60 63 47 49	38 32 34 34 33	86 86 85 82 86	61 74 75 71 74	75 65 62 62 62	45 45 46 48 30	65 68 62 65 60	46 57 59 54 49	70 72 72 72 72 71	65 69 69 69 51	75 78 78 74 65	56 70 71 65 53	75 76 76 71 71	57 70 70 67 51	74 77 72 67 65	58 45 64 58 52	71 71 68 64 64	46 61 64 58 50	48 61 53 60 49	39 46 38 44 31	74 78 75 70 67	60 69 69 59 50	60 62 60 60 61	43 53 53 53 53 53	72 76 72 70 63	53 66 64 55 52
6 7 8 9 10	51 52 54	40 40 32 33 46	56 53 50 49 55	32 35 28 30 33	80 65 64 62 65	44 44 41 36 45	58 52 53 54 53	33 30 20 22 33	56 48 46 50 59	45 36 31 32 38	70 60 53 54 55	54 50 43 44 49	68 64 54 54 54	57 53 36 39 45	69 60 55 57 55	50 44 37 35 48	65 64 55 58 58	44 45 29 28 42	60 50 48 53 56	48 42 30 33 42	42 41 44 47 62	33 27 19 23 26	67 52 52 54 48	45 40 34 37 45	57 48 45 50 58	33 34 25 24 29	61 49 48 49 48	46 38 32 32 44
11 12 13 14 15	55 62 69	40 49 46 40 48	57 57 58 58 46	30 30 29 29 40	58 65 68 68 65	47 45 52 49 47	61 65 64 62 58	32 32 36 29 29	59 60 53 53 54	37 39 48 46 37	61 63 68 63 59	50 53 62 52 51	60 58 64 64 66	54 52 54 53 54	63 60 63 64 62	49 46 54 48 46	60 64 57 57 60	48 34 50 50 40	61 61 54 53 58	42 37 49 49 44	55 54 50 54 53	25 23 28 24 24	59 56 60 64 54	48 51 51 48 42	60 60 55 55 49	30 49 33 33 30	60 56 56 59 55	46 47 48 47 40
16 17 18 19 20	63 55 58	48 47 45 45 40	49 42 48 55 53	38 32 33 30 32	57 71 64 72 68	52 52 48 68 55	57 58 61 68 65	37 30 35 33 30	50 55 55 52 49	46 40 40 40 35	60 60 57 60 66	53 54 52 52 52 56	56 52 58 62 64	52 41 48 54 48	59 60 58 61 68	50 52 45 49 50	60 59 59 58 66	46 50 38 43 43	54 58 52 54 57	47 47 41 45 42	45 44 46 55 44	33 29 34 36 27	52 65 59 60 62	49 47 46 48 46	49 48 55 55 52	30 36 35 35 35 31	50 58 53 63 87	49 47 42 44 42
21 22 23 24 25	59 59 62	44 38 41 40 35	48 43 52 46 47	34 25 27 31 28	70 72 89 70 58	48 62 44 41 41	51 54 66 55 51	30 26 30 36 20	40 41 46 52 40	31 33 30 36 29	57 57 56 58 44	46 47 43 42 40	51 62 63 60 59	41 45 35 44 38	56 53 56 48 43	42 42 37 42 37	65 66 54 46 45	48 35 26 35 38	46 44 48 47 39	33 36 31 39 34	28 32 37 35 33	21 5 3 12 10	50 58 55 62 53	40 42 35 42 36	40 37 52 46 38	28 29 26 25 26	45 50 49 60 47	34 37 32 38 34
26 27 28 29 30	56 55 58	33 41 37 33 33 34	54 52 48 50 55 59	28 30 27 35 26 38	69 67 60 64 67 64	35 48 45 35 45 35	66 56 56 57 63 65	24 27 25 25 26 33	45 51 47 44 50 48	26 36 32 28 28 35	53 65 53 49 46 64	38 52 43 40 40	53 62 48 54 56 60	35 48 39 36 34 36	50 61 49 52 52 59	32 47 39 34 34 40	53 53 48 47 53 59	24 33 40 29 31 31	49 47 45 40 47 53	28 42 38 30 29 39	34 35 39 43 45 49	14 20 16 15 28 24	54 55 55 55 55 64	32 47 39 35 33 40	49 43 46 50 56 69	25 30 24 22 30 33	52 47 47 48 46 51	29 43 33 31 28 37
	60.1			31.6	69.9			31.5			60.3	50.8				46. 6		41.2		41.8		25.1	59.4			33.5		42.3

## CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

## DISTRICT NO. 9. COLORADO VALLEY.

FREDERICK H. BRANDENBURG, District Editor.

### GENERAL SUMMARY.

During December the pressure distribution in the West was out of the ordinary, in that the winter high area formed over Wyoming and adjacent regions instead of over the middle plateau. The effect of this change was reflected in the weather conditions. In the northern part of the district there was slight variability in temperature, and severe cold was persistent. In the southern part the month was marked by a continuation of the unsettled conditions that were a feature during November. A number of low pressure areas formed; a few moved eastward through New Mexico, while others after shifting positions filled up. All remained in the southwest long enough to cause much unsettled weather and several heavy snowfalls in the mountain districts and adjacent regions. Shortly after the beginning of the last decade very cold weather overspread western Colorado, eastern Arizona, and western New Mexico, bringing zero or lower temperatures to all high stations.

#### TEMPERATURE.

The monthly mean for the stations reporting was 32.5°, or 2.2° below the normal. The mean for December, 1912, was 29.5°. The highest monthly mean was 54.8° at Mohawk, Ariz., and the lowest, 3°, at Gunnison, Colo. During the first six days, and from the 19th to the end of the month, temperatures were below the normal in the greater part of the district. From the 7th to 18th a slight excess prevailed except in the extreme north, southwestern Colorado, and adjacent parts of Utah. The highest temperatures occurred generally in the first half of the month, and the lowest principally on the 20th, 22d, and 29th. In Arizona the lowest temperature occurred at about half of the stations during the first 5 days. Zero or lower temperatures occurred at all stations in western Wyoming and western Colorado, three-fourths of those in eastern Utah, half in New Mexico, and several in Arizona. The highest temperature, 80°, occurred at San Simon, Ariz., on the 16th, and the lowest, -36°, at Fraser, Colo., on the 22d.

Details of temperature are summarized in the following table:

				Temperature		
Areas of States in dis- trict No. 9.	Mean.	Departure from normal.	High- est	Station.	Low- est.	Station.
Western Wyoming	11.1	-6.2	47	Willow Creek Cabin.	-30	Eden.
Western Colorado	17.6	-3.0	61	Fruita	-36	Fraser.
Eastern Utah	23.4	-1.8	61	Emery	-28	Manila.
Western New Mexico	35.1	-2.2	70	Deming	-22	Dulce.
Arizona	42.8	-2.0	80	San Simon	-17	Flagstaff No. 1
Southeastern Nevada	44.0	+5.1	69	Logan	19	Logan.

#### PRECIPITATION.

The average for the stations reporting was 1.16 inches, or 0.09 inch more than the normal. The average for December, 1912, was 0.66 inch. Precipitation was general during the first 5 days, and fairly so from the 14th to the end of the month, except for 2 or 3 days, when it was scattered. Precipitation of an inch or more in 24 hours occurred at 4 stations in Colorado, 2 in New Mexico, and 3 in Arizona. The greatest monthly amount was 3.91 inches at Gladstone, Colo., while none occurred at Aztec, Benson, Quartzsite, and Yuma, Ariz. The snowfall was generally heavy. Monthly amounts of 10 inches or more occurred at 47 stations in western Colorado, 11 in eastern Utah, 9 in western New Mexico, and 15 in Arizona. The maximum monthly fall was 59.5 inches at Gladstone, Colo. The average number of days with 0.01 inch or more precipitation was 4 each in western Wyoming and Arizona, 9 in western Colorado, 5 each in eastern Utah and western New Mexico, and 2 in southeastern Nevada. For the district as a whole the average was 6 days.

For the district as a whole the average was 6 days.

The average precipitation and departures from the normal on the different watersheds are given in the following table:

					7	Vater	shed.						
G	reen.	Gr	and.	San	Juan.		ttle orado.	G	illa.	Mir	nbres.		orado oper.
Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.
0.97	+0.21	1.58	+0.39	2. 26	+0.97	1.28	-0.07	0. 91	-0.11	1.37	+0.59	0.62	+0.0

### MISCELLANEOUS.

The average amounts of sunshine in percentages, with departures from the normal, were:

Grand Junction, 63, 0; Durango, 53, -20; Phoenix, 76, -3; and Yuma, 81, +2.

The relative humidity reported was: Grand Junction,

The relative humidity reported was: Grand Junction, 78, +12; Durango, 71, -2; Phoenix, 62, +14; and Yuma, 50, +4 per cent.

### SNOWFALL IN THE MOUNTAINS.

Western Wyoming.—The snowfall was unusually light at the higher elevations, but in the eastern part of the area the fall was greater than usual so early in winter. The snow is not well packed.

Western Colorado.—In the region drained by the Gunnison and San Juan there was a moderate excess, but over the upper Grand, Yampa, and White watersheds the snowfall was less than normal. The average depth on the ground at the end of December, as compared with the

corresponding date last year, was as follows: Grand watershed 17 inches, or +3; Gunnison, 21, or +9; Yampa and White 17, or +1; and San Juan 18, or +6 inches.

Eastern Utah.—The snowfall was above the average and greater than for the corresponding month last year. The

snow is packed and the amount on the ground at the end

of the month was greater than the average.

Western New Mexico.—There was an excess of precipitation during December. At the end of the month the

average depth at the headwaters of the San Francisco, Gila, and Mimbres was 22 inches; this is greater than the average a year ago.

Arizona.—At the end of the month the depth of snow at the headwaters of the Little Colorado and Salt Rivers was above the average. Over the upper drainage area of the Gila the depths were likewise above the average, but there was less than the average on the Verde watershed.

TABLE 1.—Climatological data for December, 1913. District No. 9, Colorado Valley.

-			years.	Tem	perature	, in	degr	ees Fal	hren	heit.	Prec	elpitation	, in in	ches.	lays,		Sky.	-	direc-	
Stations.	Countles.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 26 hours.	Total snowfall, unmelted.	Number of rainy d		162	Number of cloudy days.	pu	Observers.
Wyoming,																				
Big Piney Daniel Eden Green River Pinedale Wamsutter. Willow Creek Cabin Colorado.	do. Sweetwaterdo. do. Fremont	6,740 6,577 6,083 7,167 6,702	1 14 4 8 7	7.8	- 1.9 -10.6	42a 35 37 47d	161	- 25	22	47a 45 34 40d	0. 46 0. 45 0. 49	- 0.31 + 0.11	0. 22 0. 30 0. 16	6.8 4.5 5.6	3 3 7	22 18 18 18	2 1 4	7 12 9	sw. n. w.	Ira Dodge. John Angus. Eden Val. L. & I. Co. Wm. Hutton. U. S. Forest Service. T. C. Sherman. U. S. Forest Service.
Ashcroft. Aspen. Blue Valley Ranch. Cascade. Cedaredge. Cochetopa. Collbran. Cortez. Crawford (near). Crested Butte. Delta. Dillon. Durango. Eureka. Fraser. Fruita. Glade Park. Glade Park. Gladstone. GlenwoodSprings(near) Grand Junction. Grandlake. Grand Valley. Gunnison. Hesperus (near). Horsefly. Ironton. Lake City. Lay. Mancos. Marble. Marshall Pass. Meeker (near). Montrose. Nast. Pagosa Springs. Palisades. Paonia. Pitkin. Redeliff. Redvale. Riffe. River Portal. Sapinero (near). Shoshone. Silverton (near). Spruce Lodge. Steamboat Springs. Tacoma. Telluride. Terminal Dam. Yampa (near).	do. Grand. San Juan. Delta. Saguache. Mesa. Routt. Delta. Montezuma. Montrose. Gunnison Delta. Summit. La Plata. San Juan. Grand. Mesa. do. San Juan.	6,000 8,766 6,925 6,100 8,867 4,965 8,800 6,534 10,000 8,560 4,590 7,000 10,400 5,823 4,602 8,153 8,153 8,153 8,153 8,153 10,000 10,000 8,686 6,190 6,960 7,951 10,846 6,182 6,182 7,953 7,108 4,729 5,600 8,700 8,700 8,700 8,700 8,686 8,811 10,846 6,182 8,700 8,700 8,700 8,700 8,700 8,700 8,700 8,700 8,700 8,700 8,700 8,686 8,700	111	23. 2 20. 7 12. 6 21. 2 22. 3 2 22. 2 20. 7 12. 6 21. 2 21. 2 23. 2 22. 3 2 23. 2 23. 2 24. 5 3. 0 16. 2 21. 1 13. 4 24. 0 22. 3 18. 0 12. 0 22. 4 17. 4 18. 2 18. 2	- 8.8 - 3.6 - 2.5 - 5.0 - 4.4 - 3.0 + 2.0	43 445 46 40 46 46 52 51 51 44 44 47 48 42 48 41 47 48 42 48 44 41 45 46 46 46 46 46 46 46 46 46 46 46 46 46	3 19 16 6 15 3 6 15† 15† 11 12 17 6 10† 15	- 8 - 44 - 9 - 36 - 15 - 20 - 22 - 9 - 15 - 22 - 10 - 8 - 15 - 8 - 15 - 8 - 15 - 8 - 15 - 8 - 15	22 21 21 22 22 22 20 22 21 22 20 21 22 20 21 22 20 21 22 20 21 22 20 21 22 20 21 22 20 20 21 22 20 20 21 20 20 21 22 20 20 20 21 21 22 20 20 20 20 20 20 20 20 20 20 20 20	32 24 40 31 48 46 64 36 68 48 47 43 44 43 44 43 44 43 43 43 44 43 43 43	1. 41 2. 10 0. 78 1. 69 0. 79 2. 34 1. 11 1. 73 1. 11 1. 02 2. 13 3. 84 2. 06 1. 89 1. 98	- 0.25 - 1.00 + 1.00 + 0.72 - 0.28 + 1.27 + 0.36 - 0.87 + 0.31 + 0.40 + 0.31 + 0.12 + 0.60 - 0.88 + 0.92 + 1.55 + 1.55	0. 27  0. 55  1. 03  0. 42  0. 30  0. 41  0. 34  0. 82  0. 70  0. 30  0. 21  0. 30  0. 21  0. 30  0. 41  0. 34  0. 42  0. 60  0. 21  0. 30  0. 42  0. 60  0. 22  0. 36  0. 21  0. 30  0. 32  0. 34  0. 34  0. 34  0. 34  0. 35  0. 42  0. 60  0. 32  0. 63  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85  0. 85	18.0 12.0 59.5 23.7 30.0 24.7 31.0 39.0 44.7 31.0 39.0 45.0 39.0 45.0 39.0 46.0 11.5 35.0 0 31.4 4 50.0 15.7 35.3 35.3 36.0 31.6 4 50.0 11.5 24.0 0 11.5 5 20.0 20.8 20.8 20.8 20.8 20.8 20.8 20.8	12 5 9 6 6 12 7 10 8 8 7 10 10 8 12 13 12 13 12 13 7 6 6 7 9 9 9 9 12 13 13 13 13 13 13 13 13 13 13	18 17 16 4 17 17 16 19 11 15 9 16 14 14 12 12 12 12 12 13 16 12 11 14 15 16 19 16 19 16 19 16 19 18 18 19 19 16 19 18 18 18 19 19 18 18 18 18 18 18 18 18 18 18 18 18 18	4 2 9 5 4 7 0 9 9 2 5 10 11 6 6 13 7 7 7 9 11 4 5 11 2 2 1 1 8 4 4 13 5 10 9 3 3 2 9 3 3 13 7 6 6 11 2 5	9 12 6 6 13 10 10 14 12 17 7 9 12 16 16 16 10 9 13 14 13 12 15 10 10 11 16 6 9 11 14 13 15 10 10 11 16 6 9 11 11 10 10 11 10 11 10 10 11 10 10 11 10 10	W. SW. S. Inc. Sw. Inc. Sw. Inc. Sw. Inc. Sw. Inc. Inc. Sw. Inc. Inc. Sw. Inc. Inc. Sw. Inc. Sw. Inc. Inc. Sw. Inc. Inc. Sw. Inc. Inc. Inc. Inc. Inc. Inc. Inc. Inc	Dan McArthur. U. S. Forest Service. L. R. Hubbard. The Western Colo. Power Co. Harry A. Cobbett. Miss Bessie McDonough. A. A. Wood. Mrs. M. A. Caron. George W. Wade. W. G. Clucas. C. W. Roe. Charles L. Ross. E. M. Getts. Mrs. Nannie B. Strong. U. S. Weather Bureau. The Western Colo. Power Co. L. D. C. Gaskill. J. B. Willsea. A. F. Terrill. The Western Colo. Power Co. E. A. O'Neil. U. S. Weather Bureau. Mrs. Belle Kauffman. David Evans. Clarence Adams. A. W. Friederich. G. F. Snyder. Lawrence J. Finch. Mrs. Amanda E. Foley. J. F. Maurer. A. G. Wallihan. Miss Gertrude Rickner. F. E. Morse. Wm. L. Williams. T. Baker. U. S. Reclamation Service. Arthur Hanthorn. E. T. Walker. E. P. Updegraff. J. M. Underwood. Mrs. Maggie Cammann. Dorothea Greiner. Dr. E. S. C. Foster. Clinton B. Smith. Herman Eiche. U. S. Reclamation Service W. F. Irving. Central Colorado Power Co. The Western Colo. Power Co. The Western Colo. Power Co. The Western Colo. Power Co. George R. Painter. The Western Colo. Power Co. George R. Painter. The Western Colo. Power Co. George R. Painter. The Western Colo. Power Co. The Western Colo. Power Co.
Utsh.  Bluff Canaan Castle Dale Clsco Clsco Dragon Duchesne Elkhorn Escalante Fort Duchesne Fruitland Grayson Green River Hanksville Hite Hurricane Kanab La Sal La Sal Leeds (near) Manila Moab Monticello Monticello Monticello Monticello New Harmony Orderville Pine Valley Price Ranch	San Juan. Washington. Emery. Grand Uinta. Wasstch. Uinta. Emery. Garfield. Uinta. Wasstch. San Juan. Emery. Wayne. Garfield. Washington. Kane. San Juan. Washington. Uinta. Washington. Washington. Washington. Uinta. Grand. San Juan. Washington. Uinta. Grand. San Juan. Washington. Carbon. Kane. Washington. Kane. Washington. Kane. Washington. Kane. Washington. Kane. Washington. Kane.	4, 200  5, 500 4, 447 6, 000 5, 500 6, 657, 700 4, 941 7, 625 6, 000 3, 800 4, 925 4, 200 3, 800 4, 926 6, 205 6,	14 13 3 6 3 12 10 25 3 6 13 2 13 1 1 5 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	16. 2 14. 6 28. 3 20. 2 26. 4 21. 2 33. 6 32. 0 22. 5 36. 8 3. 2 26. 6 18. 3 2. 2	+ 0.9 + 2.8 - 2.5 - 1.6	56 58 55 45 55 43 55 38	6 6 6 1† 1 14 6 6 6 6 6 6 8 18 6 31	- 5 2 - 20 - 20 - 11 - 7 - 3 - 17 - 28 - 5 - 9	25 25 29 29 24 28 20 28† 22 30 112	38 28 29 37	0. 65 1. 97 0. 70 1. 80 0. 11 1. 69 0. 65 0. 17 0. 15 0. 80 1. 30 0. 31 1. 90 0. 15 0. 16 1. 62 1. 83		0. 33 0. 46 0. 10 0. 20 0. 20 0. 20 0. 25 0. 15 0. 63 0. 71 0. 36 0. 71 0. 71	6. 0 24. 3 7. 0 18. 0 23. 0 10. 4 7. 5 T. 23. 0 13. 0 3. 0 3. 0	4 7 8 7 13 8 6 4 4 9 7 1 2 4 1 7 3 2 10	16 11 6 11 4 4  10 13 9 10 11* 18* 7 9	0  5 14  12 11  13  17 11	11	sw.	H. H. Redd. L. M. Lauritzen. Miss Fay Jeffs. Jas. I. Rounds. Homer D. Ford. Matthew M. Smith. Chas. de Moisey, jr. H. C. Wickman. Geo. H. Barney. Geo. W. Dickson. J. E. L. Carey. E. F. Thompson. Edgar E. Adams. F. J. Weber. John P. Hite. Amos Workman. D. D. Rust. G. W. Carpenter. B. F. Anderson. Daniel M. Neison. Henry Crouse. Geo. F. Barton. Oscar Wilkins. Geo. F. Prince. F. A. Porter. Mason Gardner. George Mathis. J. W. Seeman.

## TABLE 1.—Climatological data for December, 1918. District No. 9—Continued.

			rears.	Temp	erature	, in o	degre	es Fal	hreni	heit.	Prec	dpitation	n, in in	ches.	lays,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Doparture from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy d	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind d	Observers.
Utak-Continued.																				
San Rafael St. George Scofield Springdale Springdale Strawberry Tunnel Teasdale Thompsons Tropic Trout Creek Ranger Vernal	Washington. Carbon. Washington. Wasatch Wayne. Grand. Garfield. Uintado.		1 26 4 5 1 4 2 16 2 16	16. 6 36. 4 13. 8 22. 2d 24. 6	- 0.7	49 56 47 53 50	6 7 8 6 6†				1. 03 0. 80 1. 55 0. 59 1. 60	+ 1.01	0. 27 0. 30 0. 45 0. 20 0. 50	27.0 8.0 23.0 8.8 16.0	3 9 3 5 5	12 19 12 19 15d 13	0 0 7 3d 4	16 12 19 5	s. ne. nw	John Tobler. B. Newren. Mrs. Hattie F. Wood. U. S. Reclamation Service. Henry Cullum. Mrs. A. M. Starmont. E. P. Bolton. Forester. H. E. Dillman.
Victor White Rocks Woodside	Uinta	5, 250 6, 200 4, 645	1 2	*****							1. 05		0.33	13.0	6	7		17		E. C. Sims.
New Mexico.	9	4 000	15	200	0.0	-	104	1.	104		0.40	0.20	0.10				19	4		Man A Dollar
AlmaAragonAztecBergers RanchBlackrock	San Juan	5,590 8,000 6,500	15 6 13 1 4	24.9	- 0.6	56		- 15	22	50	1.47	- 0.36 + 0.74	0. 18 0. 40 0. 30	1.5 21.0 13.0	5 8	8 17 8	11 11	3 12	sw.	Max A. Balke. John R. Milligan. Dr. T. J. West. Herman Berger. Patrick Des Georges.
Bloomfield	GrantLuna	4, 215 4, 470 4, 054	18 14 13 4	40. 4	- 1.8 + 0.3	65		- 12 21	12	34	0.90	+ 0.41 + 0.37 + 0.81	0.35 0.50 0.58 0.85	8.9	10 2 5 2	10 25	13 0	8 6	nw.	Fred Le Clerc. Agent So. Pac. R. R. W. C. Belden. Agent E. P. & S. W. R. R. J. A. Molohan.
Crystal. Deming. Dulce. Fort Bayard. Fruitland. Gage. Jils Planting Station. G. O. S. Ranch. Hachita.	Luna. Rio Arriba Grant. San Juan. Luna. Grant do. do.	7,400 4,333 6,767 6,152 4,800 4,480 6,475 8,000 4,504	36 16 44 19 13 2 1	12.1 35.0 27.0 40.0 33.9 29.4	+ 3.9 -10.3 - 4.0 - 1.9	40 57 46 59 57 54	30 14 14	- 5 20 4 - 8	22	42 35 36 37 38 44	2. 11 1. 15 1. 20 2. 05 1. 51	+ 0.35 + 0.67 + 0.32 + 0.79 + 1.33	0.98 0.55 0.69 0.50 1.10 0.66 0.50 0.41	0 31.0 13.4 9.8 0 20.0 20.5	1 11 7 7 2 7 7 4	30 20 18 12 26 16 11 21	0 6 6 8 5 10 14 5	1 5 7 11 0 5 6 5	w. w. w.	Agent So. Pac. R. R. E. O. Green. U. S. General Hospital, Cyril J. Collyer. Agent So. Pac. R. R. U. S. Forest Service. Victor Culberson. Agent E. P. & S. W. R. R.
Haynes Hermanes Lordsburg	Rio Arriba Luna	6,600 4,451 4,245	2 4 31		- 3.4			*****		34	1. 23 0. 42	- 0.26	0. 78 0. 27	0 0.2	2 3	21 19	0	10 8	W. 6.	Mrs. O. L. Wingate, Agent E. P. & S. W. R. R. J. H. McClure.
Luna	Grantdodo.	7,300 5,007 7,253 4,415	12 8 2 4					- 8 - 5	22 22		1, 60	******	0.80	14. 0 25. 1 0	2 5 2	19 14 25	9 12 2	3 5 4	nw.	C. B. Martin. Charles Dennis. O. L. Scott. Agent E. P. & S. W. R. R.
Putnam Redrock Rodeo Bilver City	Grantdo	6, 200 4, 150 4, 118 5, 937	1 8 4 2		******			*****		34	1. 01 0. 95 1. 73	******	0. 40 0. 74 0. 92	0 0 16.3	4 2 6		5 2 8	6 7 3	sw. n.	C. F. Spader. Robt. H. Woods. Agent E. P. & S. W. R. R. E. M. Brumback.
Arizona.																				
anille. arrs Ranch ass Grande Ruin ass Grande Ruin avecreek (near) Chandler. Chin Lee Chilarsons Mill Clifton Clifton Cline. Cochise. Columbia Corrville. Courtland Con Luis Cos Cabezos. Couglas Coudleyville Cligin (near)	Apache Yavapai Yuma Cochise do do Greenlee Graham Cochise Maricopa Santa Cruz Gila Pinal do Apache Grahma Cochise Maricopa Cochise Maricopa Apache Grahma Cochise Grahma Go Apache Grahma Greenlee Gila Cochise Yavapai do Cochise	4, 184 8, 500 5, 293 4, 493 5, 350 6, 500 4, 916 3, 756 6, 500 11, 396 11, 452 11, 452	17 4 2 2 1 15 32 1 23 6 6 39 37 21 4 1 32 5 6 6 18 5 5 6 22 13 3 15 5 10 22 2 1 4 4 2 21 5 14 4 4 2 28	54. 54 41. 0 42. 3 43. 8 49. 0 50. 0 50. 3 49. 3 49. 4 45. 6 41. 2 42. 4 45. 4 46. 6	+ 0.5 - 5.4 - 2.8 - 2.7 - 1.6 - 1.4 - 2.9 - 0.5 - 2.4 + 0.3 - 3.1 - 2.9 - 0.6	75 62 65	2 1 1 13†	32 20 26 22 27 27 31 3 3 3	24 6 22	40s 32 37 40 39 37 40 34 34 31 39 32 43 39 48 36 43 44 3	1. 05 0. 00 0. 00 0. 00 0. 54 1. 15 0. 62 2. 58 0. 71 0. 16 0. 08 0. 70 0. 45 2. 2. 58 0. 72 1. 10 0.	- 0.65 - 0.50 - 0.51 + 0.14 - 0.45 - 0.68 - 0.31 + 0.32 - 0.89 + 0.10	0.56	T.  0.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	4 4 4 3 2 1 5 9 2 2 2 2 7 7 7 5 5 5 4 4 3 3 10 2 1 4 10 4	17 23 3 14 18 30 6 9 19 14 19 24 3 25 12 19	8  9 0 1 1 9 2 2 11 13 1 1 21 16 6 7 10 11 7 18  3 16 11 13 13 14 15 16 11 16 17 18 18 18 18 18 18 18 18 18 18	7 9 11 5 6 16 6	S. W. W. ne. sw. nw. e. W. sw. ne.	Thomas Allaire. U. S. Forest Service. Do. Agent Southern Pacific Ry Do. Operator E. P. & S. W. R. I Albert W. Owens. Mary A. Jones. A. H. Jelley. Agent Southern Pacific Ry H. E. Kell. Robert A. Rodgers. J. C. Carr. Agent Southern Pacific Ry Frank Pinkley. John B. Lammers. F. V. N. Dans. Rev. L. Ostermann, O. F. I Hiram R. Chlarson. Arizona & New Mexico Ry W. M. Clanton. Experiment Station Farm M. J. Nolan. N. F. Girdner. Agent E. P. & S. W. R. F. Do. Neil Erickson. Dr. F. T. Wright. George F. Cook. Leonard W. Klene. Agent E. P. & S. W. R. R. George T. Herrington. U. S. Forest Service. Agent E. P. & S. W. R. R. George T. Herrington. U. S. Forest Service. Agent E. P. & S. W. R. R. Agent E. P. & S. W. R. R. George T. Herrington. U. S. Forest Service. Agent Arizona Eastern R. F. Post surgeon, U. S. Army. Do.
rila Bend	Maricopa Gila Coconinodo Maricopa Apache Mohave	737 3,625 6,866 3,676 1,325 9,200 3,500	23 11 9 4 20 2	42.9 28.2 51.5	- 0.6 - 1.6 - 1.8	75 63 57 71	11 12 13 12	26 29 26 - 1 31	5 22 20 5	25 38 35 47 30	0. 25 1. 50	- 0.39 - 0.20 + 0.27	0. 25 0. 48 0. 44 0. 70 0. 15	0.0 4.0  0.0 23.6 0.5	1 7  4 5 4	14 12 19 14	16 16 10 10	1 3 2 7	ne. se. e.	Agent Southern Pacific R Dr. B. G. Fox. Agent Grand Canyon R. I B. W. Zachau. U. S. Reclamation Service U. S. Forest Service. A. N. Keech.
HerefordHolbrookIndian OasisIntake	Cochise	4, 180 5, 069 3, 000 2, 230 4, 743	23 3 6					*****		24	1.90	+ 0.37	0.18	0.0	3	19	3	9	nw.	Agent E. P. & S. W. R. F. Thorwald Larson Joseph Menager. U. S. Reclamation Service. Dr. L. A. Hawkins.

TABLE 1 .- Climatological data for December, 1913. District No. 9-Continued.

			, years	Temp	erature	, in o	degre	es Fal	renb	eit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record,	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	1 1	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	of rainy	Number of clear days.	of pe	Number of cloudy days.	Prevailing wind d	Observers.
Arizona—Continued.																				
Keams Canyon Kingman Lakeside Lewis Springs Lowell Observatory McNoal Maricopa Maricopa Maricopa Marinette Moccasin Mohawk Naco Natural Bridge Nogales Notarioso Oracle Osborn Paradise Parker Payson Pearce (near) Phoenix Phoenix (1) Phoenix (2) Pinal Ranch Pinedale Pinto Prescott Dry Farm Quartzsite Redrock Rice Roosevelt Sacaton St. Johns St. Michaels Salome San Simon Seligman Sentinel Silverbell Silverbell Snowflake Springerville Supai Tempe Thatcher Thomas Tombstone Truxton Tucson Tucson (1) Tucson (2) Vail Walnut Grove Williams Vuma. Williams Vuma.	Navajo. Coehise Coehise Coehise Coehise Pinal Maricopa Mohave Yuma Cochise Gila Santa Cruz A pache Pinal Cochise Pinal Cochise Ochise Pinal Yuma do do Pinal Apache Yavapai do Yuma Gila Cochise Pinal Navajo A pache Yavapai do Yuma Pinal Cochise Navajo A pache Yavapai Apache Yavapai Apache Cochise Yuma Pinal Cochise Yuma Cochise Yavapai Maricopa Pima Navajo A pache Coconino Maricopa Pima Navajo A pache Coconino Maricopa Pima Navajo A pache Coconino Maricopa Pima Navajo A pache Coconino Maricopa Cochise Mohave Coconino Cochise Mohave Coconino Pima do do do Juna do Cochise Mohave Coconino Cochise Mohave Coconino Pima do do Juna do Cochise Mohave Coconino Cochise Cochise Coconino Cochise Coconino Cochise Coconino Cochise Coconino Cochise Coconino Cochise Coconino	6, 600 3, 326 6, 500 4, 029 7, 180 4, 150 1, 186 4, 500 4, 579 4, 583 4, 579 4, 583 4, 579 4, 502 4, 676 5, 345 5, 550 6, 950 1, 189 4, 500 1, 189 4,	9 10 15 4 2 3 3 7 1 1 1 1 3 4 4 7 7 3 5 1 9 4 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	50.7 33.4 36.3 45.2 45.2 46.3 50.2 24.2 48.3 36.6 24.2 52.0 52.0 52.0 52.0 52.0 53.4 44.2 44.2 44.2 45.3 46.3	- 0.4  - 3.5  - 1.8  - 3.9  - 1.3  - 1.2  - 1.7  - 3.2  - 3.1  - 4.0  - 2.4  - 3.9  - 0.2  + 0.8  - 2.5  - 1.0  - 2.7  - 2.9  - 2.0  - 2.0	64 59 72 66 55 55 78 70 64 65 63 63 71 72 73 69 62 74 73 80 90 73 80 90 73 74 74 74 74 75 76 77 77 77 77 77 77 77 77 77	11 11 12 13 13 13 13 13 15 15 10 7 7	25 20	28 27 29 22 6† 22 5† 6 6 3 3 29 21 28 22 28 22 6 18 12 22 28 29 21 22 28 21 29 21 21 21 21 21 21 21 21 21 21 21 21 21	29** 47 44 44 35 33 42 38 37 38 39 42 34 40 42 46 41 31 32 23 48 37 44 32 34 46 48 41 41 41 41 41 41 41 41 41 41 41 41 41	T. 1.90 0.90 8.1.09 0.60 0.62 0.26 1.78 6.0.77 T. 1.53 1.05 0.27 1.47 1.40 0.81 1.40 0.81 1	- 0.78 + 0.36 - 0.20 - 0.46 - 0.21 + 0.56 - 0.44 - 0.32 - 0.24 - 1.11 - 0.63 + 0.63 - 0.32 - 1.11 - 0.63 + 0.64 - 0.23 - 0.24 - 0.64 - 0.64 - 0.24 - 0.64 -	T. 0.60 0.70 0.17 0.69 0.42 0.40 0.50 0.40 0.02 0.18 0.61 0.50 0.40 0.02 0.18 0.61 0.50 0.50 0.52 0.50 0.50 0.50 0.50 0.50	T. 23.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0 5 2 13 2 2 2 2 1 1 1 7 5 5 12 2 4 4 6 6 2 2 3 6 6 8 8 10 6 6 5 5 0 6 6 9 9 5 5 4 1 11 3 2 2 1 1 6 6 6 7 7 1 8 4 4 4 3 0 0	18 12 15 12 27 8 11 12 22 21 16 17 22 21 14 18 18 19 13 12 15 16 15 14 16 15 14 16 15 14 16 15 14 16 15 14 16 15 14 16 15 16 16 17 20 22 21 15 16 26 26 26 26 26 26 26 26 26 26 26 26 26	10 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8 9 9 9 1 3 0 0 4 4 8 4 4 10 6 6 6 6 12 11 11 11 8 4 4 17 5 5 8 1 1 2 2 10 8 2 2 5 5 7 13 8 16 5 5 3 6 6 1 7 7 13 3 16 6 2 2 11 1 3 3 4 6 6 2 2 10 11 1 5 5 2	SW. ne. nw. w. sw. sw. sw. sw. sw. sw. sw. ne. se. sw. ne. sw. ne. sw. ne. sw. nw. nw. nw. nw. nw. nw. nw. nw. nw. n	Fred A. Bartram. Agent A., T. & S. F. Ry. Jesse H. Rogers. Agent E. P. & S. W. R. R. Vesto M. Slipher. George J. Jones. Agent Southern Pacific Ry. Theodore Katzenstein. J. G. Maxwell. Agent Southern Pacific Ry. Agent Southern Pacific Ry. Agent E. P. & S. W. R. R. D. G. Goodfellow. Bonsall Noon. U. S. Forest Service. J. W. Lawson. Agent E. P. & S. W. R. R. J. C. Hancock. M. A. Isrnel, M. D. Mart McDonald. Clarence H. Wilson. U. S. Weather Bureau. David Aepli. Salt River Valley Nurseriet Irion & Craig. E. Thomas, Jr. Celia F. Henning. Dr. J. W. Filnn. L. L. Bates. W. E. Scott. Agent Southern Pacific Ry. Arthur Pritchard. U. S. Reclamation Service. E. W. Hudson. Alexander Shreeve. Avent Southern Pacific Ry. Arthur Pritchard. U. S. Forest Service. L. W. Hudson. Alexander Shreeve. Rev. Anselm Weber, O. F. M. August Nord. Agent Southern Pacific Ry. Imperial Copper Co. William J. Flake. U. S. Forest Service. Laura B. Symons. F. H. Simmons. J. H. Larson. L. H. Thomas. F. N. Wolcott. Truxton Canyon Ind. School Ta E. Bell. University of Arizona. Rev. James F. Record. U. S. Coast & Geodetic Sur Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter. Agent Southern Pacific Ry J. O. Carter.
Yuma (1)	do	150	6	51.6	- 2.0	74 77	74	23	5	48	Т.	- 0.45	T.	0.0	0	23	8	2	D.	U. S. Weather Bureau. C. J. Wood.
Nevada.	74	4	-		-										-					
Caliente Las Vegas Logan	Clark	4,407 2,033 1,355	11 6		+ 5.1	67 69	15 8	25 19	19† 21	37 43	0. 07 0. 19	- 0.17	0.07 0.18	0	1 2	18 20	4 6	9 5	s. n.	Salt Lake Route. C. P. Squires. Orin W. Jarvis.

<sup>a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.</sup> 

TABLE 2 .- Daily precipitation for December, 1913. District No. 9, Wyoming Valley.

Stations.	Watershed.														•	Day	of m	onti	le .													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Wyoming.																																
g Piney	Green																															
aniel	do	T.	1												.12							. 12										. 22
ien		T.	0.5			.10	0										10	70		. 30				. 05			TP.	04			.04	PP.
reen Rivernedale	do	1.												1			.10	T.														1.
amsutter	do																															
illow Creek Cabin.	do	T.		T.				-	1										. 06				T.	. 16							. 08	
Oslorado.	Consid	07	00	70	000													000		0.5				m	02	700	00	07			0.	0.
	Granddo	.21	. 02	T.	. 23	. 22	.0	0									****	.02		.05				-	-	1	1	1			. 00	. 05
ue Valley Ranch.	Yampa				.10	. 55												.03		. 10				****						***	T.	.10
	San Juan	. 48	T.	. 39	1.03					2							. 15	.10	.06	. 36				. 32		****	. 47				T.	
	Gunnison	T T	.10	.00	-18	16			-	9								T	T.			T	****	. 32			. 42		T.	T.	.25	
	Grand	.10	. 22	.03	.23	.06											.08	.14	.34	T.				.34	T.	T.	. 22	T.			.05	
umbine	Yampa	.02					.1	7											. 02	. 26							. 15	. 13				
	Gunnison San Juan		.30												****		15		. 20					40		.30					.19	
terwford (near)	Gunnison				.23												. 10			21		****		23		.10	.33				.20	.10
sted Butte	do	.48		T.	.75	T.											T.	T.		. 05			T.	. 05		.06	.10				. 05	. 44
ta	do	. 05		T.	1.06	T.												. 04		.06				. 04		T.	.08				.03	
lon	Grand San Juan	. 23	.10	.08	.78	.00				1						T.	. 13	.02	. 42				.02	.39	.06		T.	1.				. 09
reka	do	T.	.13	.10	.70	.10														.11				.10	T.	. 28					.11	. 19
ser	Grand	. 13			T.	3.30	- 4	0											14	. 05	. 05		Т.			T.						. 10
de Park	do		.01		.03												.18	.09					.02	. 15	04	T.	17					.11
dstone	San Juan															T.	.09	T.					T.	T.		.07	.32					. 26
n'd Spr'gs (near)																		T.					. 04	. 01							T.	.34
nd Junction		.16	T	T.	.01	1 50	00				****					****	.10	. 01	.09	.02			.01	.09	T.	.04 T.	-06		***	T.	. 11	. 05 T.
nd Valley	do	.02	.00		. 20							1				.10	.05	.14		.02		T.			.16	T.	.01	.19	T.		.02	.01
nnison	Gunnison	.03			. 42	. 12											.08											.18			.05	.06
den perus (near)	Yampa La Plata	.39		40	.06												177	rm.		. 16				40			. 22					. 15
sefly	Gunnison			.40 T.	20	25											T.	.04	.10	. 05			T.	. 52		.08	.08					.08
ton	do	. 50		. 20	. 60	.30											T.	T.	T.	. 70				. 10	T.	.07	.10	T.			.07	T.
e City	do	. 22	70	.32	. 56	. 28												. 08		. 13			m	T.		T.		on.				.08
1008	Yampa San Juan			T.															. 02		.02		T.	. 15		***		T.		***		.05
	Grand				. 22	. 21				1								. 05									.14				.10	.12
shall Pass	Gunnison		.44	.30	.37	. 15						.17											.16							. 22	.14	.15
	White Gunnison	.10	.13	T.													T.	.08	*	*	.35			*	. 15		1.				-	. 05
	Grand	.06		. 02		.23		1	1									.06		T.			****	T.	.10		.06	.03				
osa Springs	San Juan	.35	T.	.09	. 63											T.	.11	.12	.04	.24			. 03	. 21		T.	. 25	.02			T.	
sades	Grand		.08														T. T.	T.	.18					. 20		.17	.18					T.
	Gunnison	. 20	.12	1.	.20	. 12											2.0	.06		.16				. 37 T.	T. T.	T.	.38					. 13
cliff	Grand	.14																.08				.36				.08	.04	T.	.06	T.	.16	
	San Miguel	.33		T.	. 85					. 05								.09		. 26				. 20		. 35	T.					
e	Dolores	10	T.	.04	1.54					.19					****		.01	T.				****		.16	. 53	T.	15	T.			.88	.14
er Portal	Gunnison		.13		.32	.09											T. T.	.09						. 27							.18	
inero (near)	do	.15	.04		.16	.09	T.										T.	.11						. 28		. 03		.01			. 36	
shone	Grand	.04			.03		703										.04	.04		.08			.08	m								
	San Juan Grand	.36	1.	. 30	.52	. 04	1.		***		****		****	****		****	. 20	.11	.08	.01		****		T.		, 04	. 22				.07	. 09
amboat Springs.	Yampa	. 21													****			.04		.39				. 05			.17			****	*	*
			T.	.12				1							****		.08	.04	.18				****	.17		.04				10	T.	· · · ·
	San Miguel San Juan	- 41		.31	. 49	. 25	T.										.08	. 27	14	. 29				. 39	T.	.11				. 19	. 04	T.
	Yampa																		. 19													
Utah.		1																		-		1										
																								. 21								
le Dale	Colorado																						****	30	. 03	40	40			10	.20	. 20
																		. 05		. 10 .				.00	.10	. 10	. 10			.10	. 20	
gon	Green	. 25			. 10	. 14								. 01			.01	.09	. 49	.10			. 04	. 40			. 25	T.	T.	T.	.04	. 05
																			T				T.	. 10		. 05	T.	. 05			T.	. 05
	Colorado							****				****	****	****	****		****		.30				.30			40	30		20		.30	****
	do																															
Duchesne	Green										****	. 05		. 03	. 01																T.	T.
tland	an Juan	21	05	02	95			****	****					****		T	.05		.26								T		T		T	.08
n River	Green	.03	. 00	.00	. 20											1.	.00	T.	. 24 .					. 18						T.	T.	
ksville (	Colorado																		.09													
	do																															0000
	do																															
al	Grand	. 27 .			. 25	T.											T.	.07						T.			T.	.71			T.	T.
s (near) (	Colorado	T.																. 33					T				T.					
(la	Green	17	15																				***	10			12					
ila	Grand	.60	. 10		T																											
	do						***																									
ntain Home	Green	. 05	.05 .														. 05															
Harmony	Colorado	54		01											****	.10		07	40	***	***	. 06	00	07		24	01		****		****	00
Valley	do	.03		.01					****							.00		.01	. 10 .	***			.00	.01		. 41	.01					. 08
0	Green																. 23 .		. 92 .				. 15 .			. 15	. 15				.08	. 15
ch (	Colorado															.32			. 86 -						T.							
Rafael	Green																															
																										0.01						

# TABLE 2.—Daily precipitation for December, 1913. District No. 9—Continued.

Stations	Watershad														)	Day	of me	nth	•								1						
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Utah-Continued.																														1			
trawberry Tunnel.	Green	. 15																	. 35					. 40			. 20					. 45	1.8
easdale	Colorado																						· · · ·										
hompsons	Green Green	.50	.10	T.	T.							****	****	• • • • •		****	T.	T.	.18				.30	. 10		.20	T.					.03	1.6
routcreek Ranger.	Green																																
ernal	do																						••••				97	95			****		1:00
Vhite Rocks	do	T.	****	****	****	****	****	****		****		****	****	****	****	****	.05	.33	.30	.30	.30	T.	****	T.	. 25		. 26	. 200	****		****	****	1.3
Voodside	do																														****		
New Mexico.																																	
lma	Gila	T.			. 15											. 18	T.		T.		T.	.05	20	.02				T.				90	0.4
ragon	San Juan	. 17	****	T.	21		••••										08	т.	T	18		. 30	. 00	.30	••••	*	.30	T.	****		.03	T.	1.4
Bergers Ranch	Little Colo																					****											
Blackrock	do																												****				
Bloomfield	San Juan	.07	T.	. 08	. 35					****			****	****		40	.08	T.	Т.	.10	• • • •	T.									.02	T.	0.8
liff	Mimbres	T.			. 16	.41							****	****	****	.58	.40			****	****		.40										1.5
olumbus	Mimbres															. 85	.30					T.											1.
rystal	San Juan																																
Deming	Mimbres San Juan				55										****	. 98	14	14	.35			.16				.14						****	0.1
armington	do																																
ort Bayard	Mimbres			*	. 13	. 05										. 28						. 69		T.									1.
ruitland	San Juan				.50	,06						****	****		****		. 24	T.				05					.17					****	1.
age ila Plant'g Station	Mimbres					98			1						1	40	0.5	T.				. 95		.06						T.		****	2.0
. O. S. Ranch	Gila			. 16	. 13										.20	.38	T.				.50	. 15		. 15									1.
lachita	do	. 02														.41	.32					. 08											0.1
Iaynes	San Juan Mimbres	••••													45	70		• • • •					****		****							****	i.
ordsburg	Gila															.27		••••			. 05												0.
una	do																																
limbres	Mimbres															.80						.80 1.00							****				1.
ratt	Gilado	T.			.21	.30				• • • • •					****	. 40	.30	****	****		****	1.00		. 25	****		****	****	****	-4-	****	****	2.
utnam	San Juan															.00	.00	****															0.
edrock	Gila		. 28													. 15	. 18		.40														1.
odeoilver City	Mimbres				90						****				****	.74						.92		30		****	T	T		****			0.
Arizona.	attitiores	****		****	.02	****				****	****		****	****	****	. 33	. 11	****		****		. 82	****	.00			1.	1.				****	1
llaires Ranch	Desert		22												. 50	. 12					. 08			T.									0.
lpine	Gila																																
shfork	Gila Verde			T.												. 53					T.					.40							1.
ztec	Gila																																0.
ensonernardino	San Pedro Sonora	****														. 55	.25	****		****		.16		****	****	****					1		1.
isbee	San Pedro		T.	T.	. 05											. 38											T.						0.
lue	Gila				. 25		T.									T.	.32			T.	T.	. 45	T.	T.									1.
	do				.06										. 70	. 56					. 40		****										1.
Buckeye [ ]	do				.00											T.	1.				.14							1					0.
anille	San Pedro	T.		T.	. 15											. 46						. 16											. 0.
arrs Ranch	Salt	. 40	. 20	1	. 50											. 91	. 03					.30						.10					2.
asa Grande II asa Grande Ruin.	Gilado	T.	T.		.11				. 07			****	****			T.	****					. 64		T.					***		****	****	0.
avecreek (near)	Salt	. 01							1						.07									T.									0.
handler	do	T.														. 23					. 36												. 0.
hin Leehlarsons Mill	L. Colorado.	. 12	. 05	T.	. 15											T.	T.			. 05	T.	. 02		. 05			. 01	.2	T.				0.
lifton	Gliado	. 20	.07	- 11	.47											31		T.	. 00		. 55				.05			. 2		1:::		1	2.
line	Salt	. 19	. 10	. 12																	.21				. 10			T.					. 0.
ochise	Desert			.12											. 45							.09											. 0.
olumbia	Agua Fria Verde	. 25		1	T.	. 10	****						****	****	.06		. 05			****				. 10									0.
ourtland	White					T.	1							1.00					20	T.	T.												. 1.
on Luis	San Pedro	T.	T.	T.																		T.											T .
louglas	Desert	T.		T.	. 23 T.		****								. 27							. 17											1.
Ouglas Oudleyville	White	.01	. 05											****		35	. 15					. 05		.04			1				T.		1.
lgin	San Pedro	T.		. 20			1								. 26	. 36					. 22												. 1.
airbank	do	T.	1	. 32											. 40	.36	T.															·	. 1.
lagstaffl	L. Colorado.	. 06													. 08					. 09		.30	. 06		.20	T.	T.					T.	0.
lorence	Gila						1	1		1					12			. 10	. 02		. 55			. 10	. 20		. 00						0.
	Salt	.01	. 05	. 20											. 01		.01				.50		. 15				.30						. 1.
	San Pedro	T.	T.			. 05										. 95						. 16											1.
ort Huachuca !	Gila	. 07	00	10		****										40					. 25			****									0.
ort Huachuca     ila Bend	Salt	.07	. 06	. 10	. 20		1			1	****			***	1	. 48	.11	****	1			. 48		****		****		1					1
ort Huachuca     ila Bend lobe	Salt Colorado																																
ort Huachuca [] ila Bend lobe rand Canyon rand Canyon (1)	Colorado														. 08						. 44												. 0.
ort Huachuca     ila Bend lobe rand Canyon rand Canyon (1) ranite Reef Dam	Colorado do Salt	.06		10	. 40		1									. 28								. 02			T.	.70				****	. 2.
ort Huachuca     ila Bend	Colorado Salt L. Colorado.		. 68							1	1	.08	110	.18	8									. 02		. 04	1						0.
ort Huachuca []. ila Bend. lobe. rand Canyon rand Canyon (1). ranite Reef Dam. reer. ackberry ereford.	SaltL. Colorado Desert	. 15					1																							1	1-000		
ort Huachuca []. ila Bend. lobe rand Canyon rand Canyon (1). ranite Reef Dam reer. ackberry ereford olbrook.	ColoradodoSalt. L. Colorado. DesertSan Pedro L. Colorado.															1	1			4	1												
ort Huachuca	ColoradodoSaltL. Colorado. DesertSan PedroL. Colorado. DesertL. Colorado. Desert	. 15	. 03	Т.								1					****					****											
ort Huachuca []. ilia Bend. lobe. rand Canyon. rand Canyon (1). ranite Reef Dam. reer. ackberry. iereford. olbrook. dian Oasis. ttake.	ColoradodoSalt. L. Colorado. DesertSan Pedro L. Colorado. DesertSalt	. 15	. 03	Т.	.25							1				. 58								. 20			19						
ort Huachuca      ila Bend lobe rand Canyon (1) ranite Reef Dam reer ackberry lereford lolbrook ndian Oasis take prome	Coloradododosalt. L. Colorado. Desertsan Pedro L. Colorado. Desertsaltverde	. 15	. 03	T.	. 25							1				. 58		.10						.20			. 13	.07	7				. 1.
ort Huachuca     ilia Bend. ilobe rand Canyon rand Canyon (1) ranite Reef Dam reer. lackberry lereford lolbrook ndian Oasis ntake erome erome leams Canyon lengman	Coloradodododododododo	. 15	. 03	T.	. 25							1				. 48	. 15										. 13	.07	7				1.
ort Apache       . ort Huachuca       . iila Bend    . iila Bend    . iila Bend    . iila Canyon    . irand Canyon (1) . irandic Reef Dam . ireer . ireer . ireer . ireer od . iolbrook . indian Oasis . intake . erome . ceams Canyon . ingman . akeside .	Coloradodododododododo	. 15	. 03	T.	. 25							1					T.	.10	)									. 23					1. 1. 1.
ort Huachuca	Coloradodo Salt L. Colorado Desert San Pedro. L. Colorado Desert Salt Verde L. Colorado Colorado L. Colorado San Pedro	. 15	. 03 . 30 T 50	T.	. 25 . 07							1		. 70	0	. 48	T.	T.		Tr.	49	.35		.20	T.		T.						1. T. 1. 0.
ort Huachuca      ilia Bend  lobe	Coloradodododododododo	. 15	. 03 . 30 T 50	T.	. 25 . 07							1			0	. 48	T20	T.		T.	. 17			.20	T.	.01	T.	. 23					1. 1.

TABLE 2 .- Daily precipitation for December, 1913. District No. 9-Continued.

										-						Day	of m	onth	1.														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
Arizona-Contd.																																	
occasin	Colorado		.11																														0.
ohawk	Gila San Pedro																				T.	. 02											0.
aco	San Pedro				T.			****								. 18						T.											0.
atural Bridge	Verde	.38	. 18		. 25		:							****			. 25	. 20					T.	. 38			. 06						1.
ogales	Santa Cruz		.05								****			****	.01	.07				44.4		. 12	****	48				.02	04	10		'm'	0
acle	San Pedro	-			. 40				****				****	****		. 35		. 23	. 50	0000		.05	****	. 45	****					. 12	****	1.	1
born	do				- 20						****	****	****		****			****	****			.12									****		0
radise	Desert				. 18		1						****	****					****												****		1
rker []	Colorado		****	****										****		. 00	. 21		****				****		T.	****	****		****		****		1
yson	Verde	. 43			.30					1			****	****	1	.10	. 15								T.	T.							1
arce (near)	Desert	* 20		T.	.06									****		.61						. 14											î
oenix	Desert	. 02	T.				1							1000	. 05					****		.11		. 01							1		0
oenix (1)	do														. 27	T.					. 23												0
oenix (2)	do															. 03							. 02										0
oenix (3)	do															. 25																	0
nal Ranch	Gila	. 10	.17	. 07											. 44	. 16																	1
nedale	Little Colo	. 22	.21	. 21												. 15	.05					.04						. 13					1
nto	do		.03		. 10										. 05	. 05	. 10		T.		. 40	.30				T. T.	. 15						1
scott	Verde	.08	.11	.08	T.										T.	. 13	.02	.01			T.					T.	T.						(
scott Dry Farm.	do	.09	. 15	.05	T.										.16		.07				T.		T.			****					****		1
artzsite	Colorado																																16
drock	Santa Cruz			. 35									****		. 26			. 59					****										1
30	Gila	. 03		. 05	.17											.48		. 05				. 63	T.					****					1
osevelt	Salt																					.52									****	****	1
caton	Gila		****												.08							.54								****	****		0
Johns	Little Colo				.08									****	****									. 25						****		т.	1
Michaels	do	.08		. 16	.10									****	****	. 26		****	T.	. 20	. 40	.14	****							****	T.	T.	1
ome	Desert	T.	. 02	.01				****	****								****	****		****	****		****							****			(
n Simon	Gila	70	****	70							****	****		****					· · · ·													****	0
igman	Verde	.10		T.									****	****	.02				1.													****	1
verbell	Gila Santa Cruz												****	****	00	. 46			****			50									****	****	1
owflake	Little Colo	20	.20	.01	.00	****		****	****	****			****	****	. 08				****			. 04								****	****	****	0
ringerville	do	7	.01	00	****								****	****	****				****			.16								****	****	****	0
pai	Colorado												****	****	****							. 10								****	****	****	
mpe	Salt	15	****	****	T.										T.	. 05															****	****	0
atcher	Gila	. 10	****	****												.50									.01					****	****	****	ĭ
omas	Verde		.05		30								****			.32	.07			****	13	.06	.04	.39			. 04						li
mbstone	San Pedro.														. 49	. 24																	0
ixton	Desert	.10	.02																														10
ba	Little Colo		.01	.10	. 12											. 05		.02			.02	, 05		. 01		T.	.02	. 01					0
cson	Santa Cruz			.12	. 15											. 23	.09		****			.27											0
cson (1)	do		.09	.01	.10											. 26	.02						. 33										0
cson (2)	do	.01	. 24	.06	.22										T.	.36																	1
1	do														1.17							****											1
Inut Grove	Hassayampa	.05														*																	0
ckenburg	do	. 10													.07		. 03						. 05										(
leox	Desert	****			.02							****				.90										****					****		1
lliams	Colorado															.10																	1
ma	do																												****		****		0
4-7	do		****	****	****			****	••••	****					****	••••	****	****			T.	****				T.		****	****	****	****	****	
Nevada.																																	
iento	Colorado				****	****						****											70			000	****			****			
s Vegas	do				****	****						****																			****	****	0
an	do	. 01																				****				. 18							0

<sup>\*</sup> Precipitation included in that of the next measurement.

‡ Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3 .- Maximum and minimum temperatures for December, 1913. District No. 9.

		Wyo	ming.						Color	ado.									Uta	ah.					1	New M	fexico.	
Date.	Dar	niel.	Gr Ri	een ver.	Dur	ango.	Gra		Gunz	ison.	Mee	ker.	Steam		Em	ery.	Hi	te.	Mo	ab.	Geor		Fo		Bloc		Fo Baye	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	31 28 35 42 37	- 4 - 9 - 8 12 0	29 25 25 24 31	24 6 13 11 8	38 41 39 33 34	26 12 27 21 8	38 40 39 35 46	31 24 25 27 33	34 40 44 38 36	- 7 - 7 - 5 - 6 10	35 36 38 23 43	18 14 17 6 19	40 38 30 22 39	9 14 13 10 18	61 50 49 50 51	30 25 12 11 17	49 43 40 41 56	32 32 33 31 33	45 46 44 43 51	29 26 23 31 32	43 50 43 49 54	34 24 24 22 22 22	46 36 39 32 37	21 19 24 19 15	41 45 49 36 41	24 22 22 28 14	42 45 50 44 -40	21 22 24 23 23
6 7 8 9	33 41 41 36 36	- 1 1 0 - 5 - 6	27 25 21 17 12	- 3 - 5 - 6 - 9 -12	36 40 42 42 42	17 12 15 12 13	51 45 45 46 44	30 25 26 23 22	25 22 23 20 18	- 5 -17 -16 -21 -25	38 40 48 38 35	31 1 8 3 - 2	42 42 36 37 38	13 10 8 - 2 - 4	56 58 60 58 61	13 18 17 16 15	58 53 46 50 49	37 28 31 27 26	55 49 48 49 45	29 22 24 21 18	57 49 58 56 56	22 21 23 22 20	38 29 30 31 26	20 12 14 15 17	48 44 43 43 44	22 17 18 17 15	53 49 47 46 52	25 24 26 24 24
11 12 13 14 15	36 36 35 39 35	- 7 - 2 10 6	11 15 14 17 11	-17 -15 -14 -13 -10	42 37 36 45 46	13 10 8 9 18	42 42 42 39 43	21 20 19 19 22	16 17 16 19 21	-28 -25 -26 -24 -23	30 26 28 25 33	0 3 - 5 - 4 19	42 37 39 40 48	- 4 1 - 4 - 3 13	60 56 60 58 55	12 11 9 11 7	47 51 47 48 45	26 26 24 27 29	45 44 45 39 41	19 18 17 17 27	59 55 56 48 60	23 20 20 27 34	21 24 25 20 30	16 15 17 15 17	44 41 41 43 45	16 14 14 16 21	52 54 56 57 46	21 21 22 23 23
16 17 18 19 20	28 26 30 20	- 2 3 5 - 6	37 37 25 13 13	8 15 0 4 - 9	36 34 33 27 24	27 28 24 - 1 - 3	34 38 46 30 26	28 30 26 12 7	18 29 34 20 19	18 6 1 - 9 -24	39 35 40 25 16	14 14 9 12 -17	39 34 41 25 22	10 21 15 12 -16	60 58 55 38 35	5 11 15 7 6	50 53 51 41 35	34 33 34 22 16	43 46 48 43 23	36 33 36 1 - 4	58 49 47 44 44	34 24 31 19 28	30 24 31 23 20	15 18 12 11 12	36 41 44 32 32	30 28 29 1 6	45 49 48 48 45	3 2 2 3 2
21 22 23 24 25	18 25 25 24 26	-19 -22 - 7 - 7 - 4	0 7 22 11 18	-19 -25 0 -12 -12	29 21 31 24 26	- 4 - 7 - 9 3	23 21 23 24 26	5 3 10 - 1 8	16 5 7 1 10	-28 -29 -27 -29 -27	14 23 25 19 32	-22 -19 15 - 7 10	18 24 28 29 25	-25 -24 10 5 -18	30 31 41 44 41	8 3 6 - 2 - 5	37 29 35 34 29	18 16 21 11 19	23 24 31 24 23	- 3 - 2 15 - 3	44 38 45 45 39	19 23 26 21 28	20 19 17 20 19	13 14 14 14 14 2	28 24 33 29 26	11 1 15 - 4 3	36 42 37 42 44	11 11 11
26 27 28 29 30	32 29 33 26 26 23	- 2 0 - 9 -12 -15 - 3	23 25 4 - 1 9 41	3 4 - 9 -21 -22 - 9	30 32 28 36 21 32	20 4 -6 2 1 10	27 26 15 10 15 25	14 - 4 - 8 - 7 12	15 33 9 12 6 22	-24 - 7 -25 -29 -28 -14	33 24 16 18 28 35	17 - 5 -17 -20 -14 15	29 34 32 30 18 29	13 7 -18 -16 -13 2	40 38 35 39 36 35	- 3 - 4 - 3 - 4 - 4 - 5	34 37 34 31 30 30	23 14 18 14 14 14 21	29 29 21 22 23 27	15 5 3 - 3 - 5 5	48 49 48 47 43 45	33 23 20 21 27 30	20 25 20 19 18 30	6 7 11 10 9 10	37 32 29 21 23 34	13 19 5 -12 -11 6	42 45 43 42 43 50	2 2 11 22 2 3
Mns	31.14	-3.7	19.0	-4.7	34.1	10.5	33.7	16.3	20.8	-14.7	30.3	3.6	33.1	1.8	48.4	8.2	42.4	24.8	37.7	15.6	49.2	24.7	26.4	14.0	37.1	13.5	46.3	23.

										Ariz	ona.											
Date.	Dou	glas.	Flag	staff.		ort che.§§	Gran	and yon.	Park	er.§§	Pho	enix.	Pres	cott.	St. Mi	chaels.	Tue	son.	Yu	ma.	No	gan, ev.
1	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	56 56 57 48 61	29 30 28 35 29	28 27 27 29 43	12 4 21 17 17	41 45 40 40 43	20 16 17 25 19	46 48 48 46 47	18 16 16 14 15	64 60 60 62 60	30 30 32 36 28	51 49 56 53 57	39 30 31 37 31	35 36 33 35 44	14 15 9 13 20	41 38 40 34 35	11 13 14 23 22	56 52 57 50 52	32 32 33 35 28	61 58 60 63 67	38 36 35 32 29	51 56 53 56 61	41 41 28 24 21
6	57 56 63 57 63	25 40 31 29 30	42 42 40 40 40	25 19 20 18 19	54 53 53 57 58	19 19 23 20 19	49 50 50 51 50	16 14 14 16 16	70 64 68 70 72	26 28 26 26 26	62 70 67 69 70	33 47 50 46 42	51 52 50 51 55	18 19 19 19 19	43 46 44 43 45	13 14 13 14 14	60 64 67 65 70	28 43 45 43 35	69 74 73 71 74	34 42 43 45 41	66 61 69 68 64	28 30 27 25 28
11	68 66 70 72 56	30 33 27 32 42	49 44 49 43 33	16 14 13 22 28	58 57 60 64 49	20 19 17 23 25	50 54 57 36 48	12 10 10 19 29	72 72 74 70 74	30 32 30 36	70 69 70 71 66	41 36 38 46 50	53 53 56 55 48	19 17 17 24 30	44 46 47 48 38	13 14 12 14 23	69 70 74 73 65	43 35 34 39 51	71 72 72 72 64 72	44 43 42 45 45	66 66 61 60 68	25 27 27 31 40
16	54 61 64 67 60	40 33 32 40 30	41 42 35 36 26	27 19 28 17 19	47 52 51 50 48	33 25 27 25 25 25	46 47 45 44 40	27 18 16 16 -1	70 68 68 62 64	34 28 30 35 34	60 65 65 61 58	48 45 42 39 37	49 43 47 47 39	29 25 25 20 28	40 39 38 36 29	28 18 23 1 - 5	58 63 66 60 61	48 38 36 34 39	70 69 69 64 57	41 45 36 39 43	66 59 60 51 52	32 33 30 21 25
21	52 55	37 26 27 26 27	32 32 33 34 42	-2 -2 7 -5 16	42 41 44 45 50	3 4 13 13 23	44 40 38 38 39	4 5 6 4 4	60 61 56 60 62	36 34 30 40 34	53 53 58 59 64	38 34 40 35 42	38 44 41 40 48	21 19 28 15 25	31 25 32 36 34	14 -13 10 - 3 - 5	55 54 56 58 54	38 32 34 30 37	59 64 65 66 69	38 40 40 38 46	52 50 55 49 43	19 26 29 29 35
26	57 58 62 57	40 27 32 29 26 31	34 29 27 38 38 48	11 5 8 11 12 30	48 45 50 49 49 57	10 12 14 19 20 25	38 37 38 40 42 40	5 4 4 6 7 7	65 68 60 66 68 64	36 40 26 32 40 36	61 61 61 61 60 65	40 35 39 36 38 44	45 43 45 49 45 59	28 16 14 22 26 29	35 35 35 33 34 41	10 - 5 - 5 - 1 0 24	67 59 60 60 61 65	37 35 36 32 29 36	67 64 64 68 69 74	43 40 39 37 40 46	55 56 55 55 49 60	33 27 30 27 32 42
Mns,	59.4	31.4	36.9	15.0	49.7	19.1	44.7	11.8	65.6	32.25	61.8	39.6	46.1	20.7	38.2	10.3	61.3	36.4	67.1	40.2	57.8	29.5

<sup>\*,</sup> b, \*, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR DECEMBER, 1913

# DISTRICT NO. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

#### GENERAL SUMMARY.

December was unusually cold in all parts of the district, nearly every station reporting the monthly mean temperature below normal, but there are on record many years when the December temperatures were lower than during the present month. The precipitation averaged somewhat above normal, and the month was much wetter than December, 1912, there being more rainy days, but this did not seem to interfere with outside work.

For the district there was on the average 13 clear days, 8 partly cloudy, 10 cloudy, and 6 rainy days.

### TEMPERATURE.

The temperature for the district as a whole averaged 26° or 2.4° below normal. The only portion of the district where the monthly means were not below the normal was the extreme west-central part, where the averages were higher than normal. The local means ranged from 13° at Cokeville, Wyo., to 47.5° at Jean, Nev. The lowest means occurred in the extreme northeastern portion of the district, and the highest in the California and the western and southwestern parts of the Nevada areas. The greatest deficiency was at Woodruff, Utah, whose mean was 13.2°, or 7.7° below normal.

The first two decades were the warmest parts of the month, and at all stations the highest temperature for the month was recorded in that period, except at a few whose highest occurred on the last day. The coldest period extended from the 19th to the 24th, inclusive, when zero temperatures were quite general, and when the majority of stations reported their minimum temperatures.

The highest temperatures for the month in the respective States, or parts of States, were 41° on the 31st at Evanston, Wyo.; 48° on the 14th at Weston, Idaho; 54° on the 13th at Beaver, on the 15th at Cedar City, and on the 31st at Scipio, all in Utah; 65° on the 4th and 5th at Jean, Nev.; 72° on the 7th at Cliff, Oreg.; and 56° on the 12th and other dates at Truckee, Cal.

The lowest temperatures were:  $-19^{\circ}$  on the 22d and 30th at Border and on the 21st at Evanston, both in Wyoming;  $-12^{\circ}$  on the 21st at Grace, Idaho;  $-21^{\circ}$  on

the 21st at Ibapah, Utah;  $-22^{\circ}$  on the 28th and 29th at Tecoma, Nev.;  $-6^{\circ}$  on the 18th at Cliff, Oreg.; and  $-2^{\circ}$  on the 4th at Bridgeport, Cal.

## PRECIPITATION.

The precipitation for the district averaged 1.69 inches, or 0.17 inch above normal. The distribution throughout the district was quite uneven, the larger amounts occurring on the western slopes of the Wasatch Mountains, and in the Oregon, California, and northern and western portions of the Nevada areas; and the lesser amounts in the western part of the Utah and eastern part of the Nevada areas.

The greatest monthly excess in precipitation was 1.92 inches at Quinn River Ranch, Nev., whose monthly amount was 2.65 inches; at Jean and Rhyolite, Nev., no rainfall was recorded. The largest monthly amount was 10.29 inches at Marlette Lake, Nev.; and the largest 24-hour amount was 4.67 inches at Tahoe, Cal., on the 31st.

In the Nevada area, while the average precipitation was but 0.17 inch above normal, it was 6 times as much as occurred during December, 1912. Most of the moisture fell on the first few days and during the latter half of the month, the larger amounts occurring toward the close of the month.

More than the normal snowfall occurred in the Utah area during this December, and much more than in the corresponding month of 1912. The snow was well distributed, and only a few correspondents reported a deficiency. Judging from the conditions on the last day of December, it would seem that the prospective water supply was above normal.

The snowfall in the Truckee, Carson, Walker, and Humboldt Basins of the Nevada area was much heavier than during December of the three preceding years. The average amount for the period September 1 to December 31 for the Truckee Basin was 10.7 inches, or 5.6 inches more than for the same period last year; for the Carson Basin, 6.5 inches, or 1.7 inches more than last year; for the Walker Basin, 3.7 inches, or 1.7 inches more than last year; and for the Humboldt Basin, 3.9 inches, or 0.5 inch less than last year. The average amount in all the basins is greater than usual at this season of the year.

Table 1.—Climatological data for December, 1913. District No. 10, Great Basin.

			years.	Temp	erature	in d	egre	es Fah	renh	nelt.	Prec	ipitation	, in in	ehes.	days		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record,	Меап.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.		Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind	Observers.
Wyoming.	Lincoln	6,085	11	13.0	- 0.8	39	8	_ 19	22†	37	0.82	+ 0.05	0.29	8.6	5	19	5	7	w.	S. W. Condron.
okeville Evanston	do	6, 204 6, 860	3 17	13.6 17.4	- 2.4	39 41	18† 31	- 17	29† 21	47 38	0.69 0.93	- 0.32	0.30 0.26	8.0 7.0	6	15 19	7	5	W. e.	E. J. Tuckett. Frank Tucker.
Idaho. Beneva	Bear Lake	6, 171	4								1.22		0.84	11.0	3	23	3	5		F. W. Boehme.
race		5,400 5,946	6 18	17.9	- 2.6	46 39	14 14	- 12 - 8	21 24	30 28	1.30	- 0.68	0.40	11.0 8.2	8	15	8	8	nw.	E. W. Joy. John Norton.
Veston		4,460	14	23.0	- 1.3	48	14	- 10	22	35		+ 0.40	0.28	11.0	6	18	1	12	n.	Wm. T. Chatterton.
Utah.	IItah	4,900	14								1.60	+ 0.35	0.60	16.0	5	16	3	12		T. F. Carlisle.
dpine	Utah Beaver	6,000	14	21.0		54	13	- 17 - 3	21†		1.90		0.48	18.8	6	3 9	21 9	7		Henry Baker.
Black Rock	Millard Boxelder	4,872 4,305	9	29.6		51	17 14	- 2	21 21	37 35	0.10 2.80	- 0.33	0.10	1.0 28.0	6			10		W. D. Livingston. Nephi M. Valentine.
Burrville	Sevier	6,800	8	20.4		46	61	- 13	201	47	0.90		0.36	15.5	7 9	10	9	12		F. R. Curtis. David Moore.
edar City	Iron	5,750 4,250	8 2	26.8		54 42	15		29 24	37 41	0.89		0.35	13.0	3 4	12	8	11	n.	Parley Dalley.
enter	Cache	5,930	1								1.80		0.95		3	15	8	8	******	L. C. Peterson. W. J. Griffiths.
orinne Deseret		4,240	18	21.7 24.1	- 6.9 - 1.6	49	8	- 6 - 7	22		1.00		0.40	10.0	3	10	3	19	n.	A. C. Murphy. S. W. Western.
Elberta		4,650 5,750	11	26.7	- 0.7	46	31	1	24	33	0.93	+ 0.17	0.42	9.0	11	16 12	13	6	8.	D. C. Walkey. James E. Hall.
Crekson	Tooele	4,850	1	00 5		47			01	00	1.46		0.58	15.2	6					N. W. Erekson.
armington	Millard	4, 267 5, 100	12 21	28.5 28.6	- 1.4	47 52	11	3	21 21	26 33	1.99	+ 1.77	1.60 1.12	37.0	8	17	5	9	n.	Charles Boylin. J. J. Starley.
Parland	Boxelder	4,248	9	27.0		48	2	- 4	21	29	0.70		0.40		2	8	17	6	n.	Heber C. Cutler. E. M. Smith.
lovernment Creek	Tooele	5, 277	12	23.4	- 4.3	46	13	- 4 0	29 18	34 26	1.46	+ 0.66	0.40	14.0	8	18	4	9	8.	Walter James.
ranger rantsville	Salt Lake	4,560 4,220	6	28.2		50	31		18	20	0.24		0.12	3.2	5	8	18	5	nw.	Max. Greene. Monto Barrus.
rouse Creek	Boxelder	5, 148 5, 593	3 20	22.4	+ 0.5	45	8	- 12	29	34	1.78	- 0.49	0.55	21.3 26.0	6	16		11	n. n.	Philip Paskett. John Crook.
Ienefer	Summit	5,301 4,436	13		- 0.8	48	14		29	39		+ 0.10	0.40	16.8	11	12		15		William Brewer. T. M. Jones, jr.
looperbapah	Tooele	7,500				50	11	- 21	21	47	0.90		0.30	14.8	5	15	10	6		W. M. Chastain.
bexosepa		5, 250 4, 356	2			44	31	- 5	30	32	2.03		0.70		5	2	11	18		John J. Watson. Geo. K. Hubbell.
unction	Piute	6,000 5,250	1		Law - secon						0.62		0.28	8.5	3 5	20		2	S.	Joseph Jensen. Geo. Crane.
Kanosh	Boxelder	4,230	33	23.2	4	43	10		28		1.30		0.40	13.0	5	1		5	b	F. W. Klock.
emay		4, 221 5, 010	23	20.1 25.0	- 0.1	46	14		28		0.80	+ 0.01	0.30	8.0 18.2	9	16		15	n.	. Agent So. Pac. Co. Wm. Brown.
Logan Low	Cache	4,507	22	24.6	- 0.8	44	31	- 6	30	34	0.56	- 0.50	0.18	11.2	5					. Utah Exp. Station. Agent W. Pac. Co.
Lucin	Boxelder	4,504	6	22.4		. 44	6	+- 6	30	34	0.41		0.23		4	17				. E. C. Puryear.
Manti Maple Creek	Utah	5,575 4,890	2			44	8				1.28		0.30	12.0	. 7	5				. Lewis W. Gillilan.
Marysvale Meadowville	Piute	6,180				50 42	31		20 29		0.73		0.25	14.0	0		11	6		. Lafe King. J. S. Moffat.
Midlake Midvale	Boxelder	4, 235	2	30.5		. 40	6	† 14	30	10	0.14			9.6	. 7	12	9	10		Mrs. S. M. Gibson. E. D. Camomile.
Milford	Beaver	4,962	5	21.4		. 44	17	- 6	24	39			0.60				7		nw.	F. J. Bandreau. Geo. McCune.
Mills	. Cache	4,911									0.56				8	12				Fred Yeates.
Minersville Modena	Beaver	5,070			- 6.8		ii	2		33		- 0.04	0.28	12.0	7	10			SW.	Fred R. Pryor, U. S. Weather Burea
Morgan	. Morgan	5,068	3	24.6		49	5	+ 12	21	37	1.61		. 0.70		7					E. O. Kingston. B. F. Eliason.
Moroni Mosida	Sanpete	6,000	1			43	14						0.35							. L. B. Curtis.
Nephi New Castle	Juab	5,119				-		-			1		-							A. D. Ellison. T. W. Jones.
Oak City Ogden	. Millard	4,900			- 2.1	47	17	9	27	25	2.52	+ 0.83	0.61	30.0		12	2 7	1	sw.	Peter Nielson. A. Van de Graaff.
Panguitch	. Garfield	6,560	) 1																	Harry L. Strembel.
Park City Parowan	Summit	7,000 5,970			- 2.8	42			21	31	2.19		1.18	27.0	3 (		51 4	11	34	Alex. Matheson.
Payson Pelican Point	Utahdo	4,637	7 8			-					. 2.07	7	. 0.55	23.0	8	10	0 1	20	SW.	D. L. Coombs. B. M. Mendenhall.
Pineview	. Summit	8, 250	) 3	2 20.0		. 48							. 0.04		- 1			2	n.	Granville Deming.
Pinto Promontory	. Boxelder	4,913	3 38	3	26 - 4.4															J. H. Harrison. F. C. Houghton.
Provo Randolph						51	14	1 - 8	3 24	41	1.91	+ 0.37	0.43	26.0		1	5 7			Reclamation Service William Rex.
Revier	. Salt Lake	5,060	3 2	2					-		0.92		. 0.50		- 4					E. L. Terry. P. A. Westman. J. R. Thompson.
Richmond	. Cache	4,529	) 1								1.40	3	0.42				8 11			J. R. Thompson.
SaharaSaltair	Salt Lake	5,20	) 1	24.2		. 50	1	11 9	) 20		0.6	5	0.36		. 7					Earl Markwith. E. J. Bench. U. S. Weather Bure
Salt Lake City	do	4,360	39	30.6		48	31	1 10	) 2	1 21	1.3	1 + 0.02	0.63	17.7	11	13		5 1		U. S. Weather Bures Thos. Memmott.
ScipioShowell	. Boxelder	4,650	0 19	22.2	2	20	1	8 - 15	5 24	4 43	0.8	0.31	0.3	18.0	) 1	1	9 1	7	5	Richard Ilgner.
Silver City Smyths	. Beaver	6,12	0 1	1							0.1		0.50		1 4					J. L. Stark. V. Waddoups.
Soldier Summit Spanish Fork	. Utah	7,45	4 1	2		52	1	4 8	5 9	1† 29			0.2				2 1	7-	2	Geo. A. Boyd. Reclamation Service
Springvale	. Juab	. 5,00	0   1	1						-1 -01						1				Jas. Coleman.
Strawberry Tunnel Tooele	Tooele	. 4,90		7 27.	0 - 2.	5 53	3	1 7	7 2	2 30			0.4				4 1	3 1	4 8.	E. A. Bonelli.
University of Utah Vernon	. Salt Lake			2			-				1.3		0.4		0 1	5 1	9	6	6 nw.	
Wendover	do	. 4,23	7	1 22.		50	)	7 -	5 2	8 4			0.3						71	J. S. Cooper.
Whiskey Creek	Millard	. 4,85	UI	2		0 - 1											anlan.			UEW. DIEVELS.

TABLE 1.—Climatological data for December, 1913. District No. 10—Continued.

			years	Temp	erature	, in c	legre	es Fah	rent	neit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	cord	Observers.
Nevada.																				
Austin. Battle Mountain Beowawe Carlin. Cherry Croek Clover Valley Columbia Dry Farm East Rochester Elko Eureka. Fallon Fernley Gardnerville. Gerlach Gevser Glenbrook Goloonda. Halleck Indian Springs Jean Lahontan Leeland Lewers Ranch Lida. Lovelocks McDermil Metropolls Millett Mina. Oasis Ranch Potts. Ranch Rebel Croek Rano. Rhyolite Sand Pass. Searchlight. Soda Lake Tecoma Tonopah Weils. Weils. Weinsen. Oreen.	do. Eureka. Elko White Pine. Elko Elko Esmeralda Elko Elko Elko Elko Elko Eureka. Churchill Lyon. Douglas. Humboldt Elko Lincoln. Douglas. Humboldt Elko. Clark Jo. Charchill Nye. Washoe. Esmeralda Humboldt do. White Pine. Elko. Nye. Mineral Esmeralda Nye. Humboldt University Unive	6.002 4.600 5.106 6.990 4,850	24 42 42 42 5 12 6 1 1 0 42 22 0 0 9 4 4 20 0 5 1 1 1 2 2 3 3 2 2 5 6 1 1 1 2 1 2 1 0 0 1 1 1 0 0 0 0 0 0 0 0	23. 3 25. 2 29. 7 29. 2 26. 6 31. 7 32. 6 31. 6 32. 2 29. 2 27. 2 21. 4 26. 0 32. 0 32. 0 32. 0 32. 0 32. 0 32. 0 32. 0 32. 0 47. 5 33. 8 31. 6 22. 0 22. 4 47. 5 33. 8 47. 5 33. 8 47. 5 33. 8 47. 5 33. 6 47. 6	- 5.4 - 5.1 - 1.5 - 4.4 - 0.3 - 1.5 + 0.4 - 2.4 - 3.1 - 0.5 - 4.8 - 2.4 - 3.1 - 0.5 - 4.8	47 49 62 51 62 55 8 55 64 50 52 55 54 65 55 65 65 50 50 50 50 50 50 50 50 50 50 50 50 50	7† 10 15 31 12† 16† 8 14	- 5 - 21 14 0 0 - 15 20 23 6 - 12 6 - 5 - 9 - 3 8 - 4 - 8 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	3 21 27	29 47 41 57 40	1. 96 0. 84 0. 60 0. 23 1. 13 3. 16 0. 44 0. 70 0. 85 0. 20 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 0. 00 0. 20 0. 00 0. 20 0. 20	- 0.01 + 0.22 - 0.39 - 0.56 - 0.36 - 0.39 + 0.61 + 1.01 - 0.24 - 0.31 - 0.02 + 0.43 - 0.38 - 0.43 - 0.55 - 0.55 - 0.55 - 0.55 - 0.55	0. 45 0. 65 0. 10 0. 65 0. 12 0. 63 0. 12 0. 63 0. 13 0. 36 0. 25 0. 21 0. 25 0. 20 0. 36 0. 25 0. 20 0. 36 0. 25 0. 25 0. 20 0. 36 0. 25 0. 25 0. 25 0. 20 0. 36 0. 25 0. 25 0. 25 0. 25 0. 36 0. 25 0. 26 0. 25 0. 25	7.5 7.1 1 10.0 11.0 14.0 123.0 17.8 8.8 8.8 8.1.5 1.9 9.6 8.8 9.7 3.3 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8 7.8	4 3 3 7 2 2 5 5 7 6 5 5 5 6 6 7 7 4 5 5 2 2 13 3 3 6 1 1 0 7 7 2 2 3 4 4 8 8 8 8 8 8 8 8 8 8 9 7 7	10 13 20 14 12 15 18 8 14 10 14 22 14 14 17 11 17 11 18 8 9 9 12 16	15 11 6 9 11 0 0 3 5 7 7 10 4 4 4 6 6 5 5 15 5 15 5 16 18 18 18 18 18 18 18 18 18 18 18 18 18	67 7 55 88 115 114 9 20 111 113 3 3 12 12 13 14 12 13 14 15 16 17 17 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	W. DW. e. S. W. W. DW. W. SW. DW. W. SW. DW. W. S. SW. S. SW. S. SW. S. SW. W. De. SW.	F. O. Bove. Southern Pacific Co. Do. Do. J. H. Leishman. I. F. Wiseman. A. Booth. Walfrid Sohlman. E. B. Mills. Western Pacific Co. Clay Simms. U. S. Experiment Station. Mrs. G. A. Steele. Forest Service. Western Pacific Co. Mrs. J. F. Wambolt. C. C. Henningsen. Southern Pacific Co. Do. Ira McFarland. Southern Pacific Co. Les Reclamation Service. Agent T. & T. R. R. Ross Lewers. L. F. Detwiler. A. P. Tiliord. F. M. Bullock. R. E. Middagh. O. M. Lloyd. Fred J. Jones. Southern Pacific Co. A. S. Patterson. Miss Maude Potts. F. M. Payne. E. J. Hyatt. U. S. Weather Bureau. Chas. Kirchen. Western Pacific Co. C. L. Aug. Mahn. U. S. Reclamation Service. Southern Pacific Co. U. S. Weather Bureau. Southern Pacific Co. U. S. Weather Bureau. Southern Pacific Co. U. S. Weather Bureau. High School.
Burns	Lakedo	4, 157 4, 300 4, 500 4, 700	22 6 10 16	30. 2 27. 9=	+ 0.9	72 50°	1 7 10 13	- 1 - 6 10° 4	25 18 9 9	38 60 36* 39	0, 85 0, 80°	+ 0.83	0. 54 0. 35 0. 74° 0. 90	29. 0 11. 0 2. 0 1. 5	5 7 2* 4			9 10 9a 2		J. C. Welcome, jr. John C. Green. C. M. Sain. G. W. Marvin.
California.	-														100					
Bridgeport	Eldorado	6.240	0 0 2 41	26, 8 34, 4 28, 8 32, 6	+ 3.9		11 11 6 12	5	23 16 4	43 32 38 40	2.34 9.93 9.71 4.23	- 0.36	1. 09 3. 80 4. 67 0. 80	25. 7 51. 0 30. 0 42. 0	12 11 9 12	19 10 13 14	6 4 2 1	17 16 16	SW. S. W. 0.	A. F. Scott. Carl Fluegge. R. M. Watson. Southern Pacific Co.

\*, b, \*, etc., indicate, respectively, 1 2, 3, etc., days missing from the record.

\*\*Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

Table 2.—Daily precipitation for December, 1913. District No. 10, Great Basin.

Stations.	Watershed.														D	ay o	f mo	nth.	11-														2
Stations.	watersned.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Wyoming.																																	
order	Bear	0.18																T.	0.29					0.15		0.16					0.04		0.8
keville	do		0.00													· · · ·	0.14		.12	T.			T.	.27		T.	T.	T.			T.	0.30	0.6
vanston	do	. 20	0. 22	****		****				****		****		****	****	1.	0. 14	****	.10		****	****	1.	.10		1.	0. 11				*		0.0
Idaho.																	1																-
aneva	Bear																			0.14				. 24								. 84	1.2
eneva	do																	0.10	. 20	. 10			0.05			. 25	. 10		0.00		. 10	. 40	0.2
eston	do				****	****	****	1	****		****				****		. 05		.28	. 05			. 15	****			. 15		0.00		.10	. 25	
						1		1		1										1			-		-			1					
Utah.																																	
	G. S. Lake																		. 60				. 40			. 20							1.6
	Sevier Lake.	T.	T		0.05												****		. 42					. 48		. 30	40		****				1.9
	G. S. Lake	1.																	. 60	.30				. 70							. 40		2.8
irrville	Sevier Lake.	.36																		. 20	0. 10			. 12		. 05	10				.02		0.9
stle Rockdar City	G. S. Lake Desert	*	.30			****	****					****	****				. 10	****	. 25					.03		*	. 31					. 10	1 0 1
nter	do	. 05																T.	T.				. 20	T.			T.					. 35	0.
	G. S. Lake					****			****			****		****	****		. 30		*	. 40			. 20										1.
seret	Sevier Lake	. 13						1		1									. 15							. 22						****	0.
berta	G. S. Lake Desert	.04	. 13	0 30													T.	.01	. 15					. 42		.01						. 10	
ekson	do	. 17					1									T.		7.11					. 19	. 33	0.08		. 58						1.
rmington	G. S. Lake									1													. 20	. 35	T.	. 15	. 45	·m			.20	. 13	3.
llmore	Sevier Lake. G. S. Lake	1. 12	.01																					. 10		. 20	. 40					. 10	
rrison	Desert	. 40															T.		.30							· m				1 000			0.
vernment Creek	G. S. Lake	. 20	. 05											****			T.	****					. 22	. 15		Т.	. 40					.09	1.
antsville	do	. 12																	.01			!		.02				. 07	1			. 02	
ouse Creek	Desert	· · · ·										T.					.10		.20				. 27		T.	. 04					.14	.55	
ober	G. S. Lake	.14					1									0.03				.09			.02			. 10	.14	T.			.14	.20	
ooper	do																																Ö.
apah	Desert	. 10	. 15													****		.30					. 05				.30				1		U.
юра	do	. 10																	. 27	T.			.52			. 44	.70	T.		T.			2.
nction	Sevier Lake.	. 20														T.			.28								. 14				T.	T.	
nosh	G. S. Lake	1.20					1					****		****		****		****	.20			****		.40	. 10						.20	.40	1.
may	Desert							0. 05				0.05					. 10						.30			*	. 10			0. 10	. 10		0.
evan	Sevier Lake. G. S. Lake	. 35																.02		. 08			. 15	. 29		. 12		. 46			1.06	. 23	
ow .	Desert									1							.20					*	*	*	40		. 10						0.
cin	do						1					T.						T.	.07		Т.		. 08	. 03	****	.16	T.				T.	. 23	0.
antiaple Creek	Sevier Lake. G. S. Lake	. 19			T.											****	T.	T.		. 16			. 41	. A'E	****	. 10				3		.49	
arion	do																								****				10000				
arysvaleeadowville	Sevier Lake. G. S. Lake.	*	17			***					****						****		. 25		****	****	. 20 T.		****	.10			1	.04	T.	T.	0.
dlake	do																		.02				. 03	. 01		. 02	. 01				.01	.04	0.
	Sevier Lake.																	.36				****	20		****	. 29					.11	.05	0.
ilford	G. S. Lake.		. 60	****		****	****									****			.05	. 05	****		. 04	.11		.05		)				.06	
Ills	Sevier Lake.																			****			.11			.21	24					00	1.
inersville	Desert	T.	T	.01									****			****		T.	. 28		T.	****			****	.32				1	1		0.
organ	G. S. Lake.	.11														1	.00			.12				.30			. 20	)			. 70		2 1.
	Sevier Lake.																T.	T.	. 26 T.	T.	.35		.09	. 27		. 09					.15		1.
osida	G. S. Lake.						1::::						1		1	****										. 40							
ew Castle	Desert																																
ak Citygden	Sevier Lake. G. S. Lake										1								.17	. 61	.35	.42	.39	. 24	.13	.07	.14	1				T.	2.
inguitch	Sevier Lake.												1																			18	
rk City	G. S. Lake	.30	.08		****				****	****	***					T.	. 33		.75	, 02			T.	.15	****	.21	.11	T.			.09	.15	1 2.
rk Valley	Desertdo	1.15																		****				.19	****	. 45		30	3		. 02		2.
vson	G. S. Lake	. 15																	.30	.10			.12	. 55		. 25	.18	B T.				. 42	2.
lican Point neview	do			****	****				****		1			****					.04														0.
nto	Decert			51	1	1	1			1			1	1	1		1		21				T.	****			.2	8					. 1.
omotory	G. S. Lake	****									****			****				*		*			1.10		*	*	3	8			. 43	3	1
andolph	do								1											8888		lanes											
evier	do															. U.		688		. 00						1 . 41						1.12	2
chfieldchmond	Sevier Lake. G. S. Lake			1		1					1	100				1	1	110	20	0.5		1	1 .11	.03	.04	.14	1 .2	5		00	3 .09		2 1
hara	Desert G. S. Lakedo	.36	. 02	.03															.01	FF1				.10		.10	0.0	5					2 0
It Lake City	G. S. Lake.	.01														01		0	. 23	T.			.00	0 .02		.14	1 .1	2 6		T	.0	1 .03	3 1
nio	Desert	. 66	. (16)								· Lanne			Acce.		· lanne				n . uc	11						1 16	4 . 3	7		. T.	.45	2 2
owell	do																		.1 .3				.2	7		.0					. 0		6 0
ver City	do		.09	T. 12	T				T		0		00	T	1	T				.00	3	. 68	·U		.01	.0	5 T		T	. T	T.	. 0	. 0
anish Fork	G. S. Lake	. 03	. 08									.1							21	. 00	5		T.	. 10	)	I.	T	1	5			2	5 0
ringvale	Sevier Lake.																							-									
rawberry Tunnel.	G. S. Lake.				****			-										0 0 0 0															
ooele	do	. 42	.01													T.	.0	1	30	) (			.0	2 .01	1	T.	.2	4				-	1
nistle	Desert		. 59														T.		1.1				.1	4		T.	1.2					1.0	2 1
	do			***	***																			1	1	1:::	1	* ***	1000	1			
hiskey Creek inder																																	

## TABLE 2.—Daily precipitation for December, 1913. District No. 10—Continued.

															]	Day	of mo	nth.								*							
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Nevada.																																	
43	77 b - 1-24																		10							40					40	. 20	
thur	Humboldt																		. 10												. 40		
ttle Mountain	Humboldt																					T.	T	10	. 45	20		0000				. 03	
owawe	do											0000										16	1.	. 10	25	. 20						. 00	
rlin	do	0000				****																			. 200						. 00		
erry Creek	do	.04																T.	.10				.08								.08		1
ver Valley	do																							*	.52						*	. 65	
lumbia	Desert														. 12					.09	. 05	T.	. 03									. 03	1
y Farm	Humboldt											T.						. 15	T.					. 10	.31	. 03	. 52				. 22	. 63	L
st Rochester	do																	T.			T.	.08	. 20	.07	. 90		.04					60	
0	do																	. 10					. 05	04		-	06				.02	.00	1
rekallon	Carson														02			7				T.		02	T		. 04		01		.00	.06	1
mley	Truckee											****			15	****				T	17	05	.10		.15				. 15			.36	
rdnerville	Carson	T.													.08						.12		. 41									2,55	
rlach	Desert														T.			T.					. 21		.10	. 05	. 03	. 05					1
yser	Humboldt													.30	T.	T.	T.	T.	T.	T.	T.	T.	*	.40					1				
nbrook	Truckee								1				T.	. 02	1		. 03	. 03	. 05		.04	. 02	1.50	.02	.50	. 02			1	.08	1.50	1.50	1
leonda	Humboldt																						. 17		. 22		0 0 0 0				. 68		1
ileck	do																						. 05	. 05			. 25		. 25	. 10	*		
lton	Desert							0000															.20	.20	.40	00	.76					. 55	
lian Springs	Desert													****	***	***	****	****	****	****	****	****	****		****	. 02	****		****		****		1
hontan	Carson						****						****	05	04	****	****	m.		Tr.	90	06	19	****	m	****	****	****	10	****	****	77	1
nontan	Amargosa							0000				****	****	.00	.04		****	1.		4.	. 66	.00	. 10	****	4.		****		. 13				1
wers Ranch	Truckee														. 20			. 20		. 60					. 40			. 20	)		2.10	.40	1
la	Desert														.17								. 43										1
Dermit	Humboldt																	. 05	.10				. 25	.14	.32	. 04	. 16	3			.31	.36	
(ill	do																		. 23				. 22	.01			. 16	3,			. 25		1
rlette Lake	Marlette L													, 25				. 20		.21	.77	.17	1.08	. 26	, 94	. 42		. 20	)	1.27	2.57	1.95	1
tropolis	do																	T.	T.				. 05	. 17	1.05	T.	1 . 12	Sterne			. 25	. 80	31
lett	Reese												1000												. 20								1
na	Desert																						. 11	94	00	0.0					. 12	90	
rth Forksis Ranch	Humboldt Desert	. 03	00	60						1													40	. 49	.00	.01					. 14	. 40	1
tts	Reese	rgr.	.08	- OU											. 30	****		T	40		T		10		20		1		1		T		1
inn River Ranch.	Quinn																		. 20			.08	.70	.14	. 55	. 03				. 16	T.	. 76	śł.
bel Creek	do																																
no	Truckee		T.									T.		. 02	. 07	. 03		. 03		.06	T.	.11	.22	. 01	.37	T.		21		. 00	. 20	1.74	A.
yolite	Amargoso																																
se Creek	Humboldt																	. 10				.06	.06								. 15	1.43	3
nd Pass	Desert		***				****				T.			T.				T.	T.	. 05	. 10		. 10	70	.20	T.	***	- 16	0	.0	1.10	1.30	
ith	W. Walker											05		1.	. 18	20		14	T.	. 12	T.	T.	. 28	1.	00	46	2 2	0 4	200	1	T.	.90	
ooner's Ranch	Truckee Humboldt							. UK				. 20		. 10		. 18	. 20		0000	0000	. 40	. 00	. 95	. 20	. 44	01	1 .3	5 . %	. 31	. 41		. 02	
comanopah	Desert																				. 07		10			.01							-
olls	Humboldt																				.01	.02	10			2					0.00		1
innemucca	do																						.02	. 02	40	21	0.0	2		.0	.71	.33	
rington	Walker							Jane .		1	1		1				1			. 05	. 12	.01			T.				. 13	3		. 05	
ampoon		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1.00	1	1	1	1	1		1	1	1	1	1	1	1
Oregon.						1	1		1						1		1		1													1	1
						1	1		1		1				1			-										1		m	00	00	
n River																		T.	·			.01	200			000				T.		.80	
ar Valley	do															****	****					10	40		. 10	. 20	0	1 . 08	8		0.0	.36	
ms	00															****		.02				70	. 40	10	00		0	2	. 10	T	100	.35	
amond																					***										. 10	.00	1
nbody	do																	T				1 10	k		10	N 56	0		1	1	.50	1.00	à
rt Rock																		T.		1		T.	. 03		1.00	.1	4	T		T.		. 25	
islev	do									1	1	1			1			T.				T.								. T.	. 06	.74	
neca	do																																.1
ver Lake	do																					T.	T.	T.	T.	. 10	6			1	0 .16		
lley Falls	do																. 03							1.00	)	1.0	0				. 1.85		-1
		1						1	1				1	1	1		1			1						1	1			1			1
California.					1	1		-	1						1										1	1		1		1	1		1
and the same of th	Tanadana			1	1						0	2			1 11	2			1	00		. 04	50		00	)		1			1 70	2.30	0
ou	Truckee						-		* ***						. 10			90		00	20	20	1 40	90	1 40	1	ō	0	0 1	0	60	1 10	ó
Cadannort	East Walker	0	0 34	0		T				1:::					1	1		. 40	05	. 6	111	1 . 60	1 00	1 . 61	1 0	3 1	6	*	2	6 T	. 60	0	á
idgeportthedral Park	Truckee																	*	.00	*	*	*	00	7	1 4	2	6	1			3.50	3.80	0
er Park	dodo															1			****		1		.01										
obart Mills	do											. 10	)	0	1 .0	2		, 10	)	1.15	. 10	00.00	1.10	21	1 .8	2 .4	7 .0	3	1	0 .0	5 .60	82	2
andy	East Walker													. T.	T.	.00	8			*	1.14	1	1.06	3		8	2			. *	5 .60	.35	2
Kinney	Truckee						1																										*
arkleeville	East Carson		T.											10	0					T.	. 0	T.	. 01	1	. T.		. T				. 1. 8	3 2.50	0
ields Ranch	East Walker														-1 - E	61	-1					. 139	1 - 130	N		-1 - 1	2		2	1 .2	2 .08	5 . 60	0
ver Creek	East Carson																															: :::	
ahoe												. T.			. T.			. 15			1.60	)	. 20	)	. 9	5 *	7	3	1	2	. 1.29	4.6	7
ıllac	do	. T.										. T.		T.	T.			T.		. 10		. 07	. 95	. 1	8.	0 .4	5		- 1	UT	1.29 3.50 0	12.5	0
uckeeoodfords	do											. 0	.3	0 .2	0 .10	3		.30			. 20	.30	. 80		. 6	0 .6	0 .3			- 3	0	. 20	0
	West Carson		1	1	1	. 0	(E) (E)	1				1				1																	

<sup>\*</sup> Precipitation included in that of the next measurement.

Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

Table 3 .- Maximum and minimum temperatures at selected stations for December, 1913. District No. 10, Great Basin.

														1	Nevada	۱.												
Date.		rns, eg.	Che	erry eek.	EI	ko.	Eur	eka.	Fal	lon.	Ger	lach.	Jes	n.	McDe	ermit.	Mill	lett.	Mi	na.	Rei	no.	Tecc	ma.	Tono	pah.	Wir	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
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11 12 13 14 15	42 36 33 35 32	22 2 3 6 - 1	16 33 30 37 34	$     \begin{array}{r}       -10 \\       \hline       13 \\       7 \\       -1 \\       \hline       24     \end{array} $	22 22 30 24 34	-16 - 4 - 4 - 5 5	32 31 33 26 38	-8 20 8 5 21	28 40 39 34 45	17 23 18 16 22	38 35 34 25 38	22 20 17 7 22	64 61 61 60 57	30 30 30 28 28	28 33 30 27 35	8 22 9 8 23	35 35 35 31 39	10 15 5 3 24	32 35 33 35 38	9 10 8 8 23	30 39 38 40 48	21 26 23 24 34	55 54 55 53 52	-21 -12 -10 -21 3	24 27 25 29 28	14 19 18 18 25	28 38 37 28 40	19 6 9 24
8 9	34 36 30 32 34 34	24 12 2 4 24 10	31 23 6 27 36 43	20 - 3 - 8 - 2 17 31	32 28 27 29 38 45	$\begin{array}{c} 10 \\ -17 \\ -16 \\ -14 \\ 10 \\ 23 \end{array}$	33 34 30 41 36 43	12 5 4 8 25 25	40 33 32 35 46 62	18 16 21 18 27 38	34 14 26 34 29 32	- 5 12 15 28 15	57 60 60 57 59 63	29 32 33 33 30 32	35 28 33 33 34 42	14 6 14 12 19 32	37 27 31 32 39 61	17 - 3 4 7 25 39	39 32 38 40 42 51	11 14 14 25 26 29	39 30 34 43 48 54	18 18 24 25 35 36	52 50 50 50 48 46	-20 -22 -22 -22 -15 2	29 32 30 34 35 37	21 18 22 22 24 32	35 25 26 28 37 54	6 2 11 8 21 33
fns	40.7	12.3	34.6	12,0	37.3	3.1	38.7	14.5	42.3	21.1	39.5	18.9	60.5	34.5	39.3	18.1	40.0	12.0	44.0	20.0	43.3	24.4	55.5	-5.8	34.0	23.8	39.0	15.8

		Wyo	ming.													Ut	ah.									
Date.	Bor	der.	Evac	ston.		ston, aho.	Black	Rock.	Cori	nne.	Gover	nment	Mary	svale.		dow-	Mod	lens.	Ogo	len.	Paro	wan.	Pro	ovo.	Salt	Lake ty.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	in.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
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21	11 16 20 16 30	-14 -19 16 -12	16 23 22 28 24	-19 -13 14 - 6 10	19 19 40 30 31	- 8 -10 10 0 15	29 34 37 30 34	- 3 8 8 0 21	30 27 25 28 25	- 8 - 6 - 5 1 3	19 24 31 30 33	- 1 5 14 6 20	19 20 39 37 31	-15 - 9 0 4 18	26 24 30 34 36	4 13 4 17	28 30 34 30 34	15 4 2 23	35 36 34 33 31	21 20 22 18 16	27 33 35 30 32	- 2 5 14 5 18	27 33 38 30 39	- 3 - 4 18 - 8 - 20	26 32 34 31 37	10 11 23 17 28
26	30 27 15 2 18 26	15 11 - 1 -16 -19 4	30 27 20 21 27 41	$     \begin{array}{r}       18 \\       2 \\       -15 \\       -10 \\       -8 \\       12     \end{array} $	39 30 21 21 25 37	26 0 2 - 4 - 7 10	33 37 22 27 37 45	22 20 9 11 0 32	20 23 27 30 28 25	- 2 5 8 - 4 - 3 1	32 32 23 20 34 38	25 13 - 2 - 4 0 29	32 35 35 34 35 45	11 12 -12 - 5 - 5 - 5 35	34 35 26 26 32 42	20 12 8 - 8 - 2 19	35 31 19 24 37 38	19 10 4 7 17 32	30 32 36 38 36 40	12 9 11 18 20 26	37 36 30 33 37 45	18 20 1 2 12 12 26	33 37 31 25 36 42	16 25 5 - 1 - 5 28	33 33 26 24 33 48	30 20 20 13 13 33
Mns	25.7	0.3	29.3	5.4	36.3	9.8	36.5	11.1	32.2	11.2	33.2	13.7	37.5	8.4	32.0	11.0	35.9	13.9	38.1	21.7	36.9	14.7	38.8	15.1	37.0	24.1

a, b, c, indicate, respectively, 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 11, CALIFORNIA.

Local Forecaster G. H. WILLSON, District Editor.

#### GENERAL SUMMARY.

December, 1913, was a month with temperature slightly below the normal and a deficiency of sunshine, except in the south. A general storm, continuing from the 10th to the 14th, gave a fair amount of precipitation to the entire State. This was followed by a period of fair and pleasant weather continuing until the 19th. The third decade was unsettled, with almost continuous rain, accompanied by frequent high southerly winds north of the Tehachapi and heavy snow in the Sierra; while in the south the precipitation was very light and the weather generally fair. On the 30th and 31st abnormally heavy rain fell from the San Francisco Bay section northward, accompanied by warm weather, which caused the melting of the snow at the lower levels; and all streams in the Sacramento watershed and northern coast counties rose rapidly, threatening flood stages. Many small coast streams overflowed their banks, causing considerable damage, especially in Napa, Sonoma, Marin, and San Mateo Counties, where some stock was drowned and two persons lost their lives. The railroads were badly crippled by washouts and slides in many places. Some shipping was damaged by the high winds of the 22d and 30th, and several vessels which started to sea were forced to turn back on account of the rough weather outside the heads.

The temperature for the State was slightly below the normal, and although frosts occurred frequently they were not severe, and no damage resulted. The night temperatures in the valleys were not abnormally low, nor were there any marked warm periods. On the floors of the Sacramento and San Joaquin Valleys the maximum temperatures did not reach 70° and seldom exceeded that figure in the foothill districts.

The precipitation for the State as a whole was nearly twice the normal but was poorly distributed, the northern portion of the State receiving a considerable excess, while there was a marked deficiency in the south. The most important feature of the month was the heavy rains in the Sacramento watershed and northern coast counties from the 20th until the end of the month. During this period the rain was almost continuous, many daily measurements exceeding 2 inches, and at a few places on the 31st they exceeded 10 inches.

The snowfall in the mountains was very heavy and carried a large water content. On the 31st the rain extended to the 7,000-foot level, causing the snow to pack well. The following are some of the larger monthly snowfalls reported: Cisco, 58 inches; Fordyce Dam, 94; Inskip, 73; La Porte, 52.5; Macdoel, 62.9; Summit, 92; Table Rock, 77; and Tamarack, 109.

#### TEMPERATURE.

The mean temperature for the State was 1.9° below the normal. The following table gives the means and departures for each December from 1897 to 1913, inclusive.

Year.	Mean.	Depar- ture.	Year.	Mean.	Depar- ture.
	°F.			°F.	
1897	44.4	-2.3 $-2.3$	1906	47.3 48.3	+0. +1.
1899	45.8	-0.9	1908	43. 2	-3.
1900	47.3	+0.6	1909	43.3	-3.
1901	47.4	+0.7	1910,	47.8	+1.
1902	46.6	-0.1	1911	43.3	-3.
1903	48.0	+1.3	1912	44.7	-2.
1904	47.2	+0.5	1913	44.8	-1.
1905	45.3	-1.4			

#### PRECIPITATION.

The following table gives the average precipitation for the State and departure from the normal for each December from 1897 to 1913, inclusive:

Year.	Average.	Depar- ture.	Year.	Average.	Depar- ture.
	Inches.	Inches.		Inches.	Inches.
1897	1.75	-2.28	1906	8.42	+4.3
1898	1.20	-2.83	1907	5.41	+1.3
1899	3.03	-1.00	1908	2.33	-1.7
1900	1.68	-2.35	1909	6.92	+2.8
1901	1.45	-2.58	1910	1.87	-2.1
1902	2.96	-1.07	1911	2.05	-1.9
1903	1.44	-2.59	1912	1.58	-2.4
1904	3.04	-0.99	1913	7.04	+3.0
1905	1.55	-2.48			

The greatest monthly amount was 34.52 inches at Helen Mine and the greatest 24 hourly amount was 10.40 inches at Helen Mine on the 31st. At four places in the Colorado Desert there was no rain.

#### SUNSHINE.

Stations.	Hours of.	Percent- age of possible.
Eureka.	75	2
Red Bluff	118	4
Sacramento		5
San Francisco		4
San Jose	149	5
San Luis Obispo		4
Fresno		6
Los Angeles	223	7

## NOTES ON THE RIVERS OF THE SACRAMENTO AND LOWER SAN JOAQUIN WATERSHEDS DURING THE MONTH OF DECEMBER, 1913.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—Practically every stream in this watershed averaged below the December normal stages. Until the beginning of the last decade the Sacramento River and most of the larger tributaries remained stationary at unusually low stages for the season. As a result of general rains over the entire watershed, which began between the 18th and 20th and continued until about the 26th, sharp rises occurred in all streams north of the American River, especially in the Sacramento between Knights Landing and Red Bluff. On the 22d the river at Red Bluff rose 6 feet, and during the 24 hours ending at 7 a. m. of the 23d there was a rise at Colusa from 3.6 to 15.3 feet. The crest of this rise reached Knights Landing on the morning of the 24th and Sacramento City during the evening of that date, resulting in rises of 5.8 and 4.8 feet, respectively, at the two points. On the 24th messages were sent to various points in Tehama and Colusa counties indicating the advisability of removing stock to higher ground. By the morning of the 26th the river at Colusa had reached a stage of 22.7 feet, followed by a gradual fall thence to the mouth of the American until the 30th.

General and, in many cases, heavy, warm rains set in over all sections of the Sacramento watershed on the 29th and 30th and extended to about the 6,500-foot level melting the most of the snow that had accumulated during the preceding month and the second decade in December. This condition resulted in heavy rises from the mouth of the Pit River to Red Bluff and justified the issuing of general flood warnings to all sections subject to overflow north of the mouth of the Feather, and advisory messages indicating heavy rises were sent to several points in the watershed of the Feather-Yuba. From 7 a. m. of the 30th to 4 p. m. of the 31st the river at Kennett rose from 2.1 to 26.6 feet, a rise of 24.5 feet in 33 hours. There was a rise of 13.2 and 6.2 feet, respectively, at Red Bluff and Colusa during the 24 hours ending at 7 a.m. of the 31st. Heavy rains in the Coast Range resulted in freshets in Stony, Cache, and Puta Creeks, especially Stony Creek, which reached a stage of 7.6 feet on the morning of the 31st.

At Oroville on the Feather and Marysville on the Yuba there were rises of 11.9 and 6.4 feet, respectively, during the 24 hours ending at 7 a. m. of the 31st. Lower down on the Feather, about a mile below the mouth of the Bear River, it rose 9.3 feet during the period mentioned above. The American at Folsom rose 10.6 feet during the 24 hours ending at 7 a. m. of the 31st.

By midnight of the 31st all streams in the Sacramento Valley north of the American were dangerously high and rising rapidly and the Sacramento from Red Bluff to

Knights Landing was approaching the flood stage.

Lower San Joaquin watershed.—The general average of all streams in this watershed was slightly below the December normal. The rains in point of occurrence were practically coincident with those in the Sacramento Valley, but not so heavy. They resulted, however, in general though slight rises in all streams north of the Merced River. The greatest rises occurred in the Mokelumne, Cosumnes, and Calaveras rivers. Mormon Slough began running into Stockton Channel on the 17th and by the close of the month was carrying a stage of 6 feet. There were no dangerous freshets in any streams of the San Joaquin Valley during the month.

# NOTES ON STREAMS OF THE UPPER SAN JOAQUIN WATERSHED.

By W. E. BONNETT, Local Forecaster.

Although the precipitation for December and for the season at the several stations in the upper San Joaquin watershed was considerably in excess of an average for the last seven years, it is interesting to note that there was practically no change in the stages of the streams until the close of the month. Rainfall in the higher foothills has been heavy and the snow cover in the mountains is substantial at the close of the year, but the run-off has been very small.

A moderate freshet was in progress at the end of December, but there was no near approach to flood stages in that month or in the first few days of January during which the rise continued. That the precipitation has been so abundant and the run-off so small is pleasing to irrigators, as the early snow by successive freezings and longer packing by its own weight yields a steadier and more lasting flow during the ensuing summer.

The Merced responded to the rains of the 22d to 26th with a moderate rise, and 1.1 feet, the highest stage at Merced Falls, was reached on the latter date. At Friant on the San Joaquin a moderate rise was just beginning on the 31st, and the range during the month was but one-half foot. However, a rise of 3.8 feet occurred at that point on January 1. The stage in the Kings was low and quite uniform until the last day of the month, when a rise of 2 feet brought the stage to 6.7 feet. There was a further rise to 8.8 feet at the Piedra station on January 1.

Table 1.—Climatological data for December, 1913. District No. 11, California.

			years.	Tem	perature	, in	degre	es Fab	rent	neit.	Prec	ipitation	, in in		lays, re.		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	2 .	94	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	Prevalling wind d	Observers.
Oregon.																				
Chiloquin Kiamath Falls Lakeview Merrili Yonna	LakeKlamath	4, 200 4, 100 4, 825 4, 070 4, 146	23 29 6 5	30. 2 29. 8	- 1.8 + 0.2	50 51 51 53 55	10 10 7† 13 10	6 12 9 11 3	18 23 27 23 9	40 28 33 38 50	3, 35 3, 16 1, 85 1, 81 3, 29	+ 1.30 - 0.35	0. 90 1. 50 0. 68 0. 90 1. 10	19. 2 12. 5 16. 6	12 9 8 5 13	9 9 10 13 2	12 6 2		SW, S0, S,	H. W. Hineks. Augusta J. Hayden, C. C. Gott. U. S. Reclamation Service. Ward Rueck.
California.  Alturas	Tulare. Contra Costa Santa Cruz. San Bernardino. Placer. Los Angelesdo. San Bernardino Kern. San Bernardino Kern. San Bernardino Alameda Santa Barbara. Butte Inyodo. Humboldt. Placer. Riverside. Mendocino Imperial Shasta. Riverside. Imperial Kern. Napa Santa Clara Yuba. Modoc. Butte. Humboldt. San Bernardino Placer. Los Angeles. Sonoma. Fresno Placer. Colusa Tehama San Diego Yolo. Nevada Monterey Shasta Stanislaus Butte. Yuba Sierra Kings. Mariposa Fresno Yolo Siskiyou Butte. San Diego Humboldt San Diego Humboldt San Diego Humboldt San Joaquin Sierra Kings. Mariposa Fresno Yolo Siskiyou Butte. San Diego Humboldt San Joaquin Sacramento Siskiyou Butte San Joaquin Sacramento Roaquin Sacramento El Dorado Sacramento El Dorado Santa Clara Siskiyou Kern Placer Monterey Nevada Inyo Plumas Tuolumne Yolo Kings. Sonoma Mendoc Colusa Fresno Sacramento El Dorado Santa Clara Siskiyou Kern Placer Monterey Nevada Inyo Plumas Tuolumne Yolo Kings. Sonomocino Imperial Tuolumne Imperial Tuolumne	60 277 4,677 3,700 25 1,138 1,126 2,500 3,150 5,595 3,000 2,805 5,285 5,230 657 67 64 111 125 2,285 5,230 657 67 64 125 2,285 5,230 657 64 125 2,285 5,230 657 64 125 2,285 5,230 657 64 125 2,285 5,230 657 64 125 2,285 6,500 4,375 6,500 2,385 6,500 2,385 6,500 2,385 6,500 2,385 6,500 2,385 6,500 2,385 6,500 2,385 6,500 2,385 6,500 2,385 6,500 2,385 6,500 6,50	9 9 9 2 1 1 4 4 1 1 3 6 6 2 4 4 1 1 8 8 2 4 4 1 1 1 2 7 7 3 4 4 1 1 4 1 1 2 1 1 9 1 4 4 1 1 5 1 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	54.1 49.4 44.4 49.6 43.9 9.4 43.6 14.6 43.9 44.1 66.2 41.8 49.2 41.9 6.2 41	+ 0.2 + 0.1 + 0.6 + 0.7 + 0.5 - 5.3 - 0.6 - 0.7 - 4.1 + 0.4 - 2.8 - 3.1 - 3.0 + 2.7 - 2.3 - 1.8 - 4.7 - 1.6 + 4.5 - 0.1 - 5.6 - 0.9 - 0.3 - 1.8 - 1.8	666 700 61 65 64 666 63 67 60 78 64 566 67 72 66 67 70 65 70 65 70 65 70 67 70 67 70 70 70 70 70 70 70 70 70 70 70 70 70	5 1 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18 24 36 28 32 28 36 28 36 28 30 8 3	4 4 4 6 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26  25 40 40 40 39 39 32 26 44 30 22 26 43 30 31 31 31 32 33 34 33 34 33 34 36 37 38 39 31 31 31 32 32 33 34 36 37 38 38 38 38 38 38 38 38 38 38	1. 76 1. 76	+11. 25 + 1. 17 + 3. 67 + 5. 00 - 1. 74 + 4. 26 + 5. 95 - 0. 10 - 1. 56 + 6. 08 - 0. 25 + 3. 18 - 0. 24 + 7. 20 + 0. 03 + 0. 75 + 0. 03 + 0. 75 + 0. 03 + 0. 10 - 0	9.19 - 9.19 - 9.19 - 9.19 - 9.19 - 9.19 - 9.10 - 9.77 - 6.50 - 5.50 - 9.00 - 4.25 - 9.00 - 4.25 - 9.00 - 4.25 - 9.00 - 9.	0 16.2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	144 155 6 6 13 112 111 15 7 8 8 15 12 12 10 13 12 11 15 10 1	144 13 8 9 122 8 24 144 15 00 4 4 7 7 9 9 10 15 8 7 16 144 12 13 7 7 7 10 25 12 12	8 0 9 6 1 10 5 5 9 12 2 2 2 0 1 1 0 0 4 4 7 3 1 10 0 0 0 4 4 7 3 1 1 10 0 0 0 0 4 4 7 7 6 6 1 1 0 0 2 6 6 7 1 1 1 3 3 0 6 6 7 7 1 1 1 3 3 0 6 6 7 7 1 1 1 3 3 0 6 6 7 7 1 1 1 3 3 0 6 6 7 7 1 1 1 3 3 0 6 6 7 7 1 1 1 1 3 3 0 6 6 7 7 1 1 1 1 3 3 0 6 6 7 7 1 1 1 1 3 3 0 6 6 7 7 1 1 1 1 3 3 0 6 6 7 7 1 1 1 1 3 3 0 6 6 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2) 12 4 16 4 7 14 3 13 7 20 9 18 24 13 7 12 16 3 0 19 16 16 13 15 15 16 16 16 16 16 16 16 16 16 16	8. 8. 8. 10. 11. 12. 13. 14. 15. 15. 15. 16. 17. 18. 18. 18. 18. 18. 18. 18. 18. 18. 18	A. J. Burgi. U. S. Weather Bureau. S. P. Co. G. L. Buchler. S. P. Co. A. Dannenbrink. C. H. Likely.

Table 1.—Climatological data for December, 1913. District No. 11—Continued.

-			year	Temp	erature	, in d	legre	es Fah	renh	eit.	Prec	ipitation	, in inc	hes.	days,	1	Sky.		direc	
Stations.	Countles.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest,	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	03	of rainy	Number of clear days.	Number of part- ly cloudy days.	cloudy days.	pul.	Observers.
California—Continued.																				
ndependence, ndian Wells, ndio. ndian Wells, ndio. nskip, one ** amestown Kennett . Kennett . Kennett . Kennett . Kennett . Kennett . King Cityake Eleanora Portee Grandemon Coveivermorecone Pineone Pineone Juleyos Angelesos Gatos . McCloud . Macdoel . Madeline . Magalia . Mammoth Tank . Maricopa . Marywille . Merced . Mildewater . Mill Creek No. 1. Mildine . Middlewater . Mill Creek No. 1. Middlewater . Mill Creek No. 1. Modesto ** Monterio . Monterio . Monterio . Monterio . Monterio . Monterio . Napa (S. H.) . Nevada City . Newhall ** Newada City . Newhall ** Newada . Droville (near) . Palm Springs ** Pasa Robles . Peachland . Drieans . Droville (near) . Palm Springs ** Pasa Robles . Peachland . Peac	Riverside. Butte	250 213 584 827 800 190 1,875 250 490	17 35 6 35 10 1 25 26 3 19 13 18 24 42 26 26 26 26 38 4 9 35 32 42 27 7 35 39 2 42 42 43 36 35 21 44 36 36 37 37 31 10 29 21 24 22 26 20 27 25 24 21 36 36 37 37 31 10 29 21 24 21 36 36 38 37 37 31 37 37 31 37 37 31 37 37 31 37 37 31 37 37 31 37 37 31 37 31 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 37 38 38 38 38 38 38 38 38 38 38 38 38 38	40.8 45.6 55.8 34.4 44.5 56.8 38.9 7 6.5 44.2 45.9 45.9 65.0 50.4 45.0 50.4 50.4	+ 6.7 - 1.1 - 1.7 + 0.6 - 3.5 - 1.6 - 3.5 - 1.6 - 4.0 - 1.6 - 4.0 - 1.6 - 1.7 - 1.7 - 1.3 - 5.7 - 1.4 + 2.0 - 1.4 - 1.2 - 1.2 - 1.3 - 1.5	69 78 57 65 76	5 	27 38 32 22 29 27 26 39 40 29	20 18† 5† 24 18 4 18 5† 23 23 25 5 9 4 4 4† 23 23 25 6 7 13 8 6† 3 3† 19† 7 4† 18 19† 25 19 19† 29 20 20 20 20 20 20 20 20 20 20 20 20 20	22 23 28 39 28 36 16 6 28 32 34 33 33 33 38 38 38 38 38 38 38 38 38 38	6.85 6.85 9.24 9.20 1.91 1.91 1.91 1.91 1.91 1.91 1.91 1.9	+ 4.95 + 0.37 + 0.50 - 1.05 + 3.36 + 1.28 - 1.17 + 0.85 + 0.54 + 3.44 + 3.30 - 0.27 + 5.61 - 1.22 + 0.11 + 2.99 + 0.31 + 1.29 - 1.22 + 0.68 + 3.44 - 0.68 - 0.68 - 0.66 + 1.67 - 1.26 + 0.63 + 1.67 - 1.26 + 0.63 + 1.67 - 1.26 + 0.63 + 1.67 -	2.45 0.68 1.07	0	10 15 14 14 9 12 5 9 12	11 18 9 20 14 7 7 20 12 10 9 14 11 15 17 18 10 11 11 11 11 11 13 13 13 13 13	8 12 0 0 0 8 0 0 0 0 15 15 11 22 2 9 15 16 10 17 11 24 10 0 0 17 10 11 12 11 16 6 10 17 11 16 6 10 17 11 16 6 10 17 11 16 6 10 17 11 16 6 10 17 11 16 6 10 17 11 16 6 10 17 11 16 6 10 17 17 11 16 6 10 17 17 11 16 6 10 17 17 11 16 10 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	1 16 11	s. s. sw. nw. se. s. ne. s. ne. s. ne.	U. S. Weather Bureau. I. D. McCoy. F. N. Johnson. Cal. Gas & Elec. S. P. Co. Sierra Railway Co. C. H. Kremers. Miss M. E. Parsons. S. P. Co. O. J. Todd. C. W. Hendel. Santa Fe Co. W. R. Park. The Director. E. G. Still. G. F. Marsh. A. G. Evans. U. S. Weather Bureau. S. P. Co. F. H. McCullagh. F. F. Spencer. Butte Valley Land Co. J. H. Williams. Butte County R. R. Co. S. P. Co. Union Oil Co. S. P. Co. Cal. Gas & Elec. J. H. Southwick. S. P. Co. Union Oil Co. Cal. Gas & Elec. J. H. Southwick. S. P. Co. Union Co. Cal. Gas & Elec. J. H. Southwick. S. P. Co. Do. C. E. Prindle. Herbert Lathrop. J. E. DeBoy. S. P. Co. John C. Knecht. U. S. Weather Bureau. Alex. Hull. A. E. Edgar. Santa Fe Co. T. O. Bailey. S. W. Marsh. Southern Pacific Co. E. S. Wangenheim. J. R. McIntosh. U. S. Forest Service. Southern Pacific Co. B. L. Johnson. Chabot Observatory. H. D. Brodie. W. H. Duncan. U. S. Rec. Service. F. T. Hale. E. D. Fairchild. Western Pacific Co. Southern Pacific Co. So
Redlands. Readley. Rialto (near). Riverside. Rocklin. Rohnerville. Sacramento St. Helena. Salinas. San Bernardino. San Diego. San Francisco. San Jacinto San Jose. San Luis Obispo. San Mateo ** San Miguel ** San Miguel Island.	San Bernardino. Fresno. San Bernardino. Rivreside. Placer. Humboldt. Sacramento. Napa. Monterey. San Bernardino. San Diego. San Francisco. Rivreside. Santa Clara. San Ligobiero.	95 201 22 616	20 13 7 31 42 10 36 5 39 21 42 42 20 38 18 39 26	51.8 53.0 45.0 48.1 45.7 46.4 49.6 51.3 55.4 49.4 48.8 50.0 56.8	+ 0.1 - 0.4 - 2.9 - 0.6 - 0.5 - 1.1	71 80 60 72 60 . 68 70 78 72 66 75 67 76 70	8† 10† 12 12 30† 9 1 1† 9† 12 9 11 9 11 9 11† 10	32 30 28 32 28 43 41 28 31 31	19 4 27 19 4 27 11 6 4 5 20 4 3 4 18 4	31 20 43 24 33 23 36 30 46 22 17 42 32 37	1.00 5.61 8.96 4.40 19.61 1.92 0.96 0.72 5.41 1.34 3.00 5.73 4.38	- 0.57 + 1.72 + 2.43 + 0.26	35 1.45 2.15 1.55 7.00 0.48 0.31 0.34	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 8 4 8 11 13 7 7 6 12 5 13 11	6 5 9 12 19 11 18 10 12 9 10	6 0 17 14 6 5 5 6 4 17 7 6 10 9 5 0 7	14 16 6 2 19 21 177 133 8 3 6 15 9 13 16 14 14	nw. n. w. se. se. w. sw. nw. n. w. se, n. s.	W. W. Jones. W. S. Devol. Santa Fe Co. Southern Cal. Edison J. H. D. Cox. Southern Pacific Co. Dr. R. Callahan. U. S. Weather Bureau E. E. Hooper. Miss E. Ruth Abbott. Dr. A. K. Johnson. U. S. Weather Bureau Do. E. T. Tanner. U. S. Weather Bureau Do. S. P. Co. Do.
San Miguel Island Sanger ** Santa Barbara Santa Clara Santa Cruz.	Santa Barbara Santa Clara	500 371 130 90 20		49.0		75 69 74		34 29 30	2 8 3	31 37 39	2.71 2.57 9.23	- 0.62 - 0.40 + 4.45	0. 83 0. 66 2. 00	0 0	11	17 14 18	4 5 2	10 12 11	w. se. n.	Capt. W. G. Waters. S. P. Co. G. W. Russell. Santa Clara Universit W. R. Springer.

Table 1.—Climatological data for December, 1913. District No. 11—Continued.

			years.	Temper	sture,	in d	legre	es Fal	renl	neit.	Prec	elpitation	, in in	ches.	days,		Sky		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	the normal.	Highest.	Date.	Lowest.		Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of	Prevailing wind tion.	Observers.
California—Continued.																				
Sisson. Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Soledad ** Storey ** Storey ** Storey ** Storey ** Sulphur Banks. Summit. Susanville. Fehachapi ** Fehachapi ** Fehachapi ** Fehachapi ** Fehachapi ** Fehama. Feloan Rancho. Prace Rivers. Fowle. Fracy ** Jiriah. Jyper Lake. Vacaville. Vacaville. Valey Springs ** Visalia. Varner Springs Warner Springs Warner Springs Wasco. Watsonville. Westelpec. Wettchpec. Westley ** Whestiand Williows. Yorba Linda.	San Luis Obispo. Los Angeles. Sonoma. Fresno. San Bernardino. Los Angeles. Sierra. Sisiryou. Monterey Tuolumne. Tulare. San Bernardino. Butte. do. San Joaquin. Madera. Solano. Lake. Placer. Lassen. Alpine. Kern. Tulare. Placer. San Joaquin. Mendocino. Lake. Solano. Calaveras. Tulare. San Diego. Kern. Santa Cruz. Trinity Humboldt. Stanislaus. Yuba. Glenn. Orange. Mariposa.	996 110 181 311 5,000 1,400 5,000 3,555 188 1,825 4,000 5,280 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,525 2,140 3,704 64 620 1,350 3,704 64 620 1,350 3,704 620 1,350 3,704 620 1,350 3,704 620 1,350 3,704 620 1,350 3,704 620 1,350 90 84 3,165 333 2,162 1,700 90 84 136	24 28 24 27 3 3 24 39 26 3 3 9 9 42 42 40 27 7 26 42 42 10 3 3 20 40 21 40 21 40 40 40 40 40 40 40 40 40 40	46.8 - 48.1 + 48.1 + 52.2 - 29.6 - 32.4 - 51.5 + 44.4 - 44.0 - 44.1 - 33.6 - 44.1 - 33.6 - 44.1 - 44.1 - 44.1 - 44.1 - 44.1 - 44.1 - 44.1 - 44.1 - 44.1 - 44.1 - 51.2 - 44.1 - 44	1.4 2.8 3.2 2.3 2.2 2.7 0.2 1.6 2.8 1.2 2.8 1.2 2.3 2.6 1.2 0.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1	76 68 68 68 72 47 65 68 58 68 60 65 65 77 77 71 65 66 65 65 67 73 64 67 78 68 68 68 68 68 68 68 68 68 68 68 68 68	9 2 2 10 7 7 9 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	400 277 399 4 20 355 28 22 255 30 299 644 20 26 30 30 20 20 20 26 30 20 20 20 20 30 20 20 20 20 20 20 20 20 20 20 20 20 20	3 2 † 3 † 5 † 17 † 6 † 19 3 2 2 † † 5 † 5 † 18 † 18 † 18 † 27 4 4 4 6 6 † 3 † 15 3 3 † † 4 3 3 6 3 1 † 4 3 5 † 18 20 20	35 41 26 29 30 19 22 40 23 33 33 48 25 40 40 30 20 20 40 30 21 30 40 30 30 30 40 40 40 40 40 40 40 40 40 4	1. 25 2. 11 12. 17 9. 93 3. 18 5. 55 6. 55 0 6	+ 0.11 + 5.54 + 1.17 + 0.20 + 3.53 - 0.20 - 0.20 - 0.20 - 0.55 + 3.71 + 3.81 - 0.24 + 2.61 - 0.69 - 0.66 + 7.36 - 0.06 + 6.98 + 6.74 + 7.26 + 1.47 + 0.45 - 0.45 + 0.59 + 4.26 - 0.43 + 3.81 + 0.45 +	0. 99 4.00 0. 92 4.00 0. 50 0.	0 0 0 0 19.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	111 6 6 6 4 10 12 4 4 8 10 7 9 10 11 1 3 3 19 9 15 13 11 11 11 11 12 12 12 12 12 12 12 12 12	9 6 17 19 10 18 13 12 15 10 19 12 7 7 9 12 15 5 5 12 10 10 11 17 14 4 22 10 10 8 4 4 8 14 17 15	111 17 0 6 111 2 0 0 0 5 3 3 77 1 1 2 6 6 1 1 2 9 9 1 1 5 5 1 1 2 9 4 4 1 1 9 9 1 1 1 1 1 1 1 1 1 1 1 1	11 18 14 6 6 10 21 18 19 11 18 18 5 5 18 22 17 14 22 13 14 17 17 18 19 11 11 18 19 11 11 18 19 11 11 11 11 11 11 11 11 11	W. S. S. N. Se. Se. SW. S. S. N. Se. Se. S. N. Se. Se. S. N. S.	S. P. Co. F. E. Hill. S. P. Co. Do. M. Lewis. Mrs. A. E. Gregory. C. D. Johnson. S. P. Co. Do. Chas. P. Jones. D. L. Wishon. A. D. Frantz. Cal. Gas & Elec. Butte Co. R. R. Co. State Hospital. Santa Fe Co. L. S. Lorenzen. S. P. Co. C. M. Ferry. Cal. Gas. & Elec. S. P. Co. C. M. Ferry. Cal. Gas. & Elec. S. P. Co. Do. S. E. Bailey. J. H. Pierce. S. P. Co. Do. Do. Geo. McCowen. C. M. Hammond. G. O. Coburn. S. P. Co. Santa Fe Co. Mrs. F. S. Sandford. Santa Fe Co. Spreckels Sugar Co. U. S. For. Service. M. E. Lathrop. S. P. Co. Wm. Lumbard. E. C. Mills. S. J. Walker. J. P. Kelly.

\*, b, e, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

Table 2.—Daily precipitation for December, 1913. District No. 11, California.

Stations.	Watershed.														1	ray (	of mo	asta.															-
Duratons		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
Oregon.																																	
floquin	Klamath																	. 06	T.	T. T.	T.	. 28	. 16		.32	. 33	- 01	. 26		. 10	.80	.90	
amath Falls	Pitt											.02		.16				. 05		T.		.10	. 25	T.	. 23	.08		. 20 T	.04	T. T.	. 65	1.50	3
rrill	Int. drainage																			. 07		T.	. 14		. 40		T.	T. T.	T.	T.	.30	.90	
stillas	Pitt															T.				.01		99	. 24		98	20			15	98	.40	1 10	2
California.	Int. drainage	****		****										.00		1.	****	****	.00	.01	****	. 11	. 22		. 30	. 00	.00	. 20	. 10	. 20	. 20	1. 10	0
uanga	Coast																				04		03			19	- 1				. 04		1
uanga	Sacramento.													.01				.17	. 02	. 04	.01	. 04	. 03	.04	.35	. 12	.08	.12	. 05		. 08	1.13	1 5
gels Camp	San Joaquin										. 42			. 40	)					. 42			2.17	. 65		1.63					1.83	3.35	11
giola telope Valley	do											10000			.01						. 16	.02	. 14	.04		.00	. 05		****	****	.30	. 14	
tioch	do													. 16	33						. 13		. 58	. 13	.08	. 14					. 33	. 64	1 1
tosrowhead Springs.	Coastdo											. 30	. 45				****	****	****		.32		1.65	. 25	.07	2.00	. 33				1.05	1.55	
burn	Sacramento.											. 17		76	1	1					90	. 08	.77	. 25	.06	. 58	. 25				. 15	2.47	7
alon	Ocean Coast	****											1		63					T	. 16		. 73			. 35	. 03					.01	
gdad	Desert				1		1	1::::			1		1::::																				
kersfield	San Joaquin													. 58	3					T.		****				. 07				.31			1
rstowar River	Desert San Joaquin			****							1							****			****	****	. 10										
ar Valley	do														. 40						. 18				1.08	. 08	. 42				. 58	.35	1
ar Valley Dam	do							****		****											20		. 63			. 35							
umont (near)	do																				. 02	. 03	. 82		. 18	.18					. 58		
otta Lomund	do		1		1	1		1	1			16	1	5.5	5 00	16	07	7	01			4. 68	.70	. 20	3.56	.32	.04			1 9	5.80	. 72 8. 46	30
keley	Coastdodo										.2	.00		.3	5				T.	. 38	. 19		.59	1.00	. 21	. 58	. 24			. 57	1. 58	1.30	0
teravia	do												. 24	.0	8					. 08		. 71	. 10		. 65	.07				. 86	. 33		
hop	Sacramento. Owens			***								. 01	. 6							. 30	T.	T.	1.00	. 20	. 20	2. 00	. 10			1::::		2.50	
hop Creek	do			. 10	0									. 3	0					. 10		. 10	.50		.30	. 50			. 10		. 10		
eksburg	Coast Sacramento,	90	11	9						T.		- 75	1.02	.3	4 . 18			. 38	85	. 20	. 24	1. 24	1.40		2.32							4.34	
the	Desert			T.						1			. 20								T.		T.			T.					3. 2		1
ılder Creek	Desert Coast Sacramento.										1.9	3		1.4	4			30	20	. 30	T. 3. 15	10	. 64	. 12	2.84					. 98	3.2	3.50	
wmans Dam	Sacramento, Coast												3 .43	1.3	4	1:::	1	.30	. 75		. 11	. 58			2. 70	2.30	)	.00	3	. 64	3.3	7.80	0
wley	Desert Sacramento.														5							. 10	1. 20			T.							
rneytte Valley	Sacramento.	***		***								. 3	T.	1.3	0					T.	. 22	. 33	1.20	. 26	1. 35	- 63		T.	. 08	. 32	2 1. 2	2. 8	9
milla	Coast				3	7														. 33						.3	7						-
exico	Desert San Joaquin														1 10																	5	3
ienteistoga	Coast						1	1		1	1	6	5 6	4		1		1		16	. 05		2.00	. 35	. 60		3. 2	5			. 7	9.1	4
npbell	do												. 0	2 .4	8					. 20	. 02	. 29	.44	. 03	. 66	.0	1			. 0	2 .2		
mpo mpt'nv'le (near).	do Sacramento.			.0	3						1	5	5	1.2	3	1:::	1	115		1.15	. 10	. 23	. 15	. 75	1.65	3.0	0 .1	7			3 2.6	19.0	4
larville	M't'n Lakes.																14	1				. 18	.37	. 16	. 80	0.0	9	. 1:	2	. 0	7 .13		
esterico.	Sacramento.														0				)	. 20		.30	90		1. 20	1.0			0		4 1.7		
ico (near)	do										. *	.4	*	1.8	8					. 12	. 15		1.96		*	2.9	9	. 0	1			4.2	9
ina Flat	Coast						. T.				6	0			0		4	1 .00	. 18	. 07	. 89	1.0	. 30	1.98	1.71	.1	8				1 2.0		
ino	Sacramento.	T.	1		1						. 5	0	. 6	Ó					10		)		1.60	. 80	)	. 9	0 .50	0			2	0 1.5	0
remont	Coast																				. 01	T.	1 00	. 50	. 02	0. 19	5 .0	11			. 1	2	
overdale	San Joaquin.											8 .5		1 1.2	0	5		. 0	4	. 32		. 03	1.98	. 20	3. 78	. 9	i	i		0	2	1 .0	7
lfax	Sacramento.										. T.			8	5 .2	2			. 06	3	. 48	T.	1.82	. 70	. 12	2 1.6	5 .8	5			6	0 2.2	20
gate	do											5	1	7	7				.17		. 18	.17	1.75		. 62	1.5	3 .0	0				3 4. 2 0 1. 6	
ning	do			1			-				6	6	4	7	0 .1	0			.03	3 .3	1 .33	1.40	. 04	.7	2.4	3				4	8 1.4	2 .1	18
rona	Coast																				T.		. 41			. 2	9 .0	1			. 4	9 .1	0
yamacavisville	CoastdoSacramento.		0	9								1.1	3	1.4	5 .0	2				i.i	11 . 09	1 . 14	1 . 64	. 19	9 . 33	1 . 4	4	.1			2 1. 1	03.3	5
er Creek	do	1	1	1	1	1	1	1	1			1 - 41	Ri	13 6	ini .				1	1 33	2 21	. 28	NIX. 25	C . 631	901.73	5125. 4	3 . 2	m .	1000	1 . 0	6 2.4	49.1	19
Monte	Coast Sacramento.										1.0	0 .0	1 2	0 .3			5			1.1	.30	.7	4	. 2	3	. 0	4	5 1	0 0	365	2 .2	0 3.0	m
lta nafr	San Joaquin.										1.0			1	0	1.0					11	2				.1	5			. T.	. 2	5 . 5	5
Sabla	San Joaquin. Sacramento.											. 8	8					. 0	5	. 10		.70	3.60	.7	5 2. 2	5 5.4	ŏ	0.	6	- 8	2 2.5	09.0	0
scansovils Canon	Coast			1				1				1		1		1		1		1	.13	2	3.60	0. 0	5	1 3	5 .0	8		1	2	2 .3	5
mba	San Joaquin													1	9					.2	4 .00	.2	0 .17	7 . 5	8					4	2 .3	0 .4	16
bbins (near)	Sacramento.	1			1		1		1	1		- 5	4	1 . 5	3			- 0	8	1.1	4 .10	3 . 3	8 1. 44 5 2. 7	11.9	8 1.0	8[1.]	5 . 2	4 T	T	6 4	21.5	5 7 4	0
wnievilledley	San Joaquin		1:::	1	1						1		1	(	171								T.	.0	. 10	0 .2	1 .1	5		0	5 .2 0 .7	2	
dlevs	San Joaquin											0	9 T		4 .0	3				4	7 T.	T.	T.	3 .4	8 .13	3 1.6	01.1	1 .0	1	5	0 .7	21.1	5
nlap (near) nnigan	Sacramento.											1	5		2 .0	6				1	2	1 .6	2 . 7	0.0	. 8	51.8	5 .1	ò	1	4		91.1	34
nsmuir	do											.1.8	4 .0	8 .8	23 .2	9		1	2	0	8 . 0	5 . 0	5 . 8	0.10	91.2	0 .8	0	. T	7	5	. 1.0	4 4.2	24
rham	do										4	0	3 .7	0	9 .0			. T.						1.2	8 2.0	0 1. 7	3				. 2.0	0 1.5	0
st Parkgewood	do	1										7	7	. 1.3	32						0	8	2	5	7	9					5	2 2.6	60
ison	San Joaquin													:	31 .0	6							4 .2	7 .0	5	1	8 .0	4		2	8 .2	8	
Cajon	San Joaquin Coast San Joaquin Sacramento. Coast												· · · ·	11	10				0		0 .1	1 .1	4 . 2	0 .1	2	1 .1	7 .1	8		1	4 .5	11.0	12
ectra	Sacramento											1	3		10 1.0	0		1	0 .1	0 .1	0 .2	0 . 6	0 .8	0 .6	0 .8	0 .6	0		1	0 .7	0 5.0	3 .7	0
condido	Coastdo																				. 1	4	7 .3	0.0	6	. 1	3 .0	3			9 .4	9 .1	8
ireka	do						0	n)				0 . (	.8	12 .	14			. 7	0 .0	0 .2	0 .1	.5	1 .3	1. 0	U 1. 0	0 .0							
ireka. irirmont. irirmont. irirmont. irebaugh. isom. ordyce Dam	San Joaquin												. *	1.1	59						.3	1 *	.7	2 .3	9 *	1.2	7					2 .	
lton	Coast											6	7	1	35						3	0 .0	7 2.9	1 .4	3 .1	4 2.6	1				. 1.	9 3. 7	10
rebaugh	San Joaquin												8		55 6	7			1 1	5	1.1	8 .0	4 .7	3 .1	2 T	17	9 .1	0				8 1.1	36
iaulii	Sacramento.	1000									T		2 T		25 1	8		3	5 T	1	6 1	5 .2	5 2 1	6	91 8	8 1 1	0	o m	/ID			05 5. 8	

TABLE 2.—Daily precipitation for December, 1913. District No. 11—Continued.

Stations.	Watershed.	-	7			-										Day	y of I	nont	u.		-	-				-						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21 2	22 2	3	24	25	26	27	28	29	30	31
allfornis-Coutd.																																
ort Bragg	Coast					1	98				. 60		1.10	. 32			49	. 10	10	. 04	20 1	. 20 .	91	49.9	00.	10				44	0.70	en
ort Ross	do		1				. 00						. 90	. 73			. 41		. 10			. 85						.01			2.70 3.19	
outs Springs	Sacramento.																															
resno	San Joaquin.																			. 08	. 01 .				. 22	. 19				.37		
riant	do											96		.33				T.			. 35 .			41 .	97	. 60					. 44	
alteorgetown	do													1.00						.73	. 43 .	78 1.			. 66	1 50	. 66				9.1	1.55
lrov	Coast.													. 40						. 10	. 10	11 1.		97		. 44	. 05			. 45	2.00	
lta	do											. 82	. 72					. 35	. 05			65 .	60 1.	02 1	.30			. 20			2.05	
lenn Kanch	do																							83 .			. 70					. 20
lennville	San Joaquin.					****	****		****			67		.38	. 09	****	****				. 08 .	T. 3.		15 . 36	100	. 10	. 23			. 85	1.07	4 00
old Run	Coast											- 66		. 80						1.		10 2.			. 10		3.00			1.	70	5. 10
onzales	Coast	.17																			. 10					. 10				. 20		. 07
rass Valley	Sacramento.										****	. 43		1.19					. 10		. 12	. 30 2.	76 .	45 1	. 05	1.92	. 15			. 50	2.00	8.10
reenland Ranch	Desert													. 49										::								
	Sacramento.										. 33	99	. 49	. 75						. 20		25 2.			. 15			T.	. 10		1.04	
roveland	San Joaquin,																							30	. 90	1. 90					. 10	2.45
inda	Sacramento.			1		1						.30	. 10									2.	10		.50	3. 43					. 56	4.14
anford	San Joaquin.														. 11						. 08 .		14 .	06 .		. 27	. 05	****			.30	. 34
ead Dam	Sacramento.													1.09				05	1	11	. 12	. 35 2.	23 .		. 35		. 45				2. 45	
earst (near)	Coast										1.05		1. 93	. 87			10	. 04		. 14		37 2.					. 01				5. 10 2. 80	
her	Desert					1					- 14		1. 93		****		. 10		. 58		. 041	. 32			. 92		. 91				2.80	0.80
len Mine	Coast										. 33	2.39	.06	1.36				.04			.58	72 4.			.00 3						4.35	10, 40
etch Hetchy	San Joaquin										T.	T.		. 25	.10					. 26	.06	12 1.	80 .	54	. 17 1	1.13	. 14			.56	1.11	.57
	Coast		. 12	.06	N																		13			.30					.10	
ollister	do											04		. 26					10	OF	. 23	07 1.	13 .	18 .		.24					. 22	
ornbrookot Springs	Klamath			****	10000						.00	.02	. 90		54	02			. 10	. 23	45	15 .	20 .	80	. 20					1.05	. 63	1.20
ullville	San Joaquin Coast	****									. 18	. 61	. 05	. 93	.10	. 02		. 12		.57	.02 1	06 2.	01	22 2			.02			. 67		6.92
yampon	do															****																
dependence	Owens																														. 13	
	Desert																															
dioskip	Sacramento.			0000		****	****					92		1 72	****					.33	08	623								1 00	2.88	10 35
06	San Joaquin	****										. 13		. 70					. 10	.00	32	58	0.4	18.	. 30 3	. 28	. 06	. 20		1.00	. 38	. 85
cksonville	do											. 11		. 28	. 65						40	1.	29 .	81 .		. 40	. 35				. 45	
mestown	do													1.10						.50 .	1.	60 .	80		. 20 1					.50	. 40	. 75
nny Lind	do											. 15		. 50						Т.	40	9.4	80 .:		70	.32	. 30					. 55
lian	Coast			09							• • • • •			.07						.30	25	14 .	52 .	15	T.		.09				. 56	. 32
ennedy Mine	San Joaquin	****	****	. 02		****	****	****	****		****		****		****				****	. 50											****	. 22
annett	Sacramento.										*	96	*	1.67				. 09	*	.06	*	* 1.	88		* 4	. 01				*	*	9.61
entfield	Coast										. 22	.80	.02	.57				.08	. 31	. 03 1	. 12 3.	43			. 49 1	. 27						4.85
ernville	San Joaquin													. 42																		
ing Citynights Landing	Coast Sacramento.				0000						0000	20		22							20	04	20	12	00	. 28	.14		2	****		2.75
Grange	do	****			****	****		****				. 09	****	. 58		****				35	1	03	00	9	. 00	. 40			. 48	****		4.10
Jolla	Coast																				40		90 .:	21 .		. 28	.10				1.17	. 40
ke Eleanor	San Joaquin																															
kesideke Spaulding	Coast Sacramento.				****		****				10		****					12		10	0.	20.0	40	20 9	00 1		****		****	07	2 00	0 70
Porte	do																	. 15 -		.10	75	30 2. 45 3.			39 1		.01	03	. 04	. 28	1.58	4.85
thron	San Joaquin			1								11		1.17	T.				.05	. 14 1	24	03 .										.35
urel	Coast											. 90	. 86									043.	10 .	50 .	. 183	. 34	. 54				1.20	5.86
Grand	San Joaquin													. 90		****			***	.33 .		79 .:	27	-	.31 .					. 35		
mon Cove	Coast	****		****			****		****			00	****	. 15	70					.16	. 08		33	-	.30 .		2.76				.38	. 28
ek Observatory	do	****	****	****	1	****	****		****			.00			. 70					. 10			1				2. 70					2.37
ne Pine	do Owens							T.										T.											T.			Т.
	Mountain																															
	Lakes.																														-	
	Coast												****	40									58						****		. 62	
s Alamoss Angeles	do								****				****	.40	14					.07			74		1	37				.02	. 85	Ť.
s Banos	San Joaquin																															
s Gatos	Coast										T.	. 41	T.	. 83						. 24 .	.03 .	04 2.	57 .:	22	. 23 2	. 03				. 33	1.12	2.50
s Molinos	Sacramento.		****		****	****			****																							****
we Observatory.	Coast Sacramento.											er.	T	1 57	.30					10	05	00 1		- 4	20	. 75		14			1.30	3 70
Cloud	Klamath			****	****							. 10	Le	.02				.10	.20	. 20	15	40	60	10	. 80	.70	.50	.60	.40			
deline	Mountain																	. 40			20											
	Lakes.							1																		- 1	-					
agalia	Sacramento.		****									. 28		1.76		****				.02	05 .	05	5.	10	. 27 8	. 52	****				3. 15	
mmoth Tank	Desert													T	70	m					50	20	01	0		70	40				95	15
ricopa	San Joaquin		****		****	****	****		****	****				1.	84	1.		***		***	55	30	30	23	08				****		. 39	. 15
rvsville	Sacramento.										. 25		. 41	. 11						. 14	1.	07 .	18 .	08 1.	. 19	. 18	. 20		. 62		3.00	1.27
cca	Desert		T.																		1	Г. 1				T.  .						
lones	San Joaquin											. 28	. 49	.54							43	1.	40 . 1	31 .	. 01	. 66	. 35				.60	. 67
nlo Park	Const	3											20						- 1	07	15	10 1	30	05	0.5						. 48	
rced Falls	San Joaquin													49	61	. 20					42		04	2	0.8		.10			23		.06
sa Grande	do Coast			****										. 92	.01					000	42	1.	83	17	.00	. 26	.07		.01	. 43	.34	
ddlewater	San Joaquin													. 55									09	-1.	.08	.06				. 21		
Il Creek No. 1	do											.07			1.00			. 09	. 05	. 20 .	04 .	03 2.	02 .	66	. 59 1	. 61	. 20				1.19	
Il Creek No. 2	Coast																			.04	21		56			.31					. 19	T.
ils College	do San Joaquin											.06		.54				.05 .		. 12	00	10 .	.:	. 9	. 12	. 15 .	40			. 47		1.21
lton (neer)	can Joaquin										05			71	.90	.70		T		. 45	02		20	20		50	. 40	T		.70		2.48
lton (near)	do	****		****	****	****				****	.00			. 20				1.	***	. 30										. 30		
dasto																			***	. 30			01	-						.00		
desto	Desert.														v 454 1																	
kelumne Hill	Desert San Joaquin										. 13			1, 12				. 11		.32 .	04	1.	26 .	5 .	. 82	.39				.51		
kelumne Hill	San Joaquin Coast Klamath													1, 12	. 20			.11 .		. 32	04 Г	1.	26	5 .	. 82	.39 .					.59	

TABLE 2.—Daily precipitation for December, 1913. District No. 11—Continued.

Stations.	Watershed.			,	,											му	of mo	ALGE!	-					-					1				-
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	I'm and
alifornia—Contd.																			-														
ontgomery Creek	Sacramento.										79		R5	75												1.00					1.90	4, 60	0
ount Tamalnais	COBST.		1		1						.19	.11	.65	.02	6000		1	.04		. 20	. 05	1.10	1.12	T.	.50	. 34				. 32	1. 19	.87	6
ount St. Helena	do																					1 00			1 00	****	70	1 00		1 00		1.00	
apa (S. H.)	do	****					****	••••	****		. 00		.36	.01	****		****			. 17	. 12	1.12	. 25	. 25	1.20	. 80	. 70	1.00	. 50	. 51	2. 12	1.00	7
apa City apa (S. H.) eedles	Desert	.17																															0
ellie	Coast Sacramento.													1 00								****	0 70	****			10				1 70		**
evada City	do	1.019	1	1 2 2 2 2 2			1	1			1000		23	27				17		171	. 10	. 14	65	1.32	2.70	66	. 19	12		. 30		5.96 2.83	
ewnall	Coast San Joaquin Sacramento.													. 55						100	30		45	STEEN !		25		1			26		-
ewman	San Joaquin													. 32	.08					.06						. 28				. 27	. 37	4.05	2
orth Fork	San Josquin								• • • •	• • • • •		. 30		1.10	59	• • • • •		. 13	• • • •	. 10	.20	2.00	1 89	62	1.00	1.60	1 20	****		. 40	1. 53	1.06	12
ewman orth Bloomfield. orth Fork orth Lakeport akdale ak Grove akland akville ceanside ai Valley.	Coast										. 35		.70	. 05						.30	.05	1.60	.30	. 60	2.75				.30		3.00	2.50	12
akdale	San Joaquin											.13		.14		.05				. 43			. 66	. 21	.03		. 14				.43	.30	2
ak Grove	do.										06		03	48						14	01	21	74	25	95						1 10	1.09	
akville	do										.00	.52	. 43	. 10						. 1.4	.04	.33	2. 25	. 25	.78	1.65		1				5, 75	14
ceanside jai Valley	do																			. 18	.06		. 35	T.	19								1
ceanside	Gacramonto										****	T	790	. 18	T.	m	01			. 04		1 50	. 92		0 15	.38			- m		. 64	.05	2
rleans	Klamath	****							****	****	. 29	.01	. 69	.06	****	1.	.30		42	40	- 55	. 90	. 58	1.96	1.77	. 11	.01			. 68	3, 41	1, 28	1113
roville (near)	Sacramento.										.38		.97	. 14			T.			19	14	1 38	12	26	11 02	48		1		85	4.02	1.04	111
zena	Coast Sacramento. Desert								****					. 41					****	****					0.00	. 23	****		****	.22			0
alermoaim Springs	Desert	****					****		. 50	. 10		****		****	****		****	****	. 50	. 05	T.	19		08	2.00	. 30	. 10		****	*		3.30	6
arkfield	Coast													. 23						. 21		. 66		.00		. 53				. 21	1.09	.70	3
aim springs arkfield asadena asoobles eachland etaluma hoenix Dam ilot Creek inchot	do														. 18						.01		.70			. 38					.50	. 07	1
eachland	do	****	***				****				30	37	05	. 10	.04					40	. 12	.06	2 36	.03	2 40	1 17	. 02	1		77	4 00	. 20 5. 78	120
etaluma	do										.03	.38	.00	. 45				.08	****	. 53	. 01	.68	1.06	. 23	. 95	. 95				.38	1.43	2.01	6
hoenix Dam	San Joaquin													. 16						. 28	1.58		. 82	. 68	. 60	.96				.37	.54	. 73	1
llot Creek	Sacramento.											****	*	1.70				.30		.18	. 30	.08	2.26	. 70	.08	. 46			T.	1.08	2.00	6.14	14
inchotine Crest	do	****					****			****	****	****			25	1		****	****	04	****		.62	26		30	12			****	.80	30	-
lacerville	Sacramento.											. 18		. 95	. 29				. 10	.04	. 23	.30	1.00	. 42	.07	1.06	.34				. 42	2. 45	1
oint Lobos	Coast								·		.07		·	. 33				. 03		. 29	T.	****	. 64		. 47	. 26		T.		. 28		. 68	3
oint Loma	do	.01						.02	T.		94		T.	.02	T.	.01	.01	T	T.	***	T. 11	.02	T.	. 24	1.03	20	. 32	TO. P		90	68	.09	0 5
omona	do										. 22			.00					****	. 88	T.		. 58	.01	1.00	.09	.32			. 20	. 09	. 54	16
orterville	San Joaquin														. 21							.01	.02	. 15	.03	. 09	. 02	2			. 27	. 19	) (
riest Valley	Coast											40			. 44			70		10	. 10	.'04	. 88	.06	1 00	. 60	.08	700		***	. 40	3.68	
ed Bluff	dodo.		1							****	46	. 24	.50	. 05				.01	****	17	.05	1.94	. 13	35	2 13	85		T.		.42	2.90	.31	
edding	do											.76		.99	.30						.28		1.61	. 21	. 60	2. 20	.11		. 08		1.35	4.20	
edlands	Coast																				. 02	.02	. 22	.03		. 18	3			40	.07	. 13	
ine Crest. lacerville. lacerville. oint Lobos. oint Loma. oint I eyes. omona. orterville. riest Valley. unicy. ed Bluff. edding. edlands. eedley. epressa. lialto (near). ito Vista.	Sacramento.				****		****		****			.50		60			****		15	. 90	15	10	80	19	.00	59	10			59	2 30	2.65	
ialto (near)	Coast																			.03	.03		1.80	.07		. 65				.02	1.01	.05	5 3
io Vista	Sacramento.											.08		.31	.01				.03		.17	.07	. 82	.20	.01	.30	.02	2			. 49	2.87	
iverside	Coast											1 00									95		00	. 35	00	. 19					.35	1.45	
ohnerville	Coast					T.	.08				. 21	.16	. 17	.80				. 25	. 04	. 15	.20	. 63	. 43	. 15	1.38	1. 19	.00	T.		. 27	55	2. 15	
uth	do										. 18	. 73	. 08	1.52				. 31		. 46	. 15	1.39	1.43	.12	3.63	1.88	3	07	7 .0	. 59	2.58	6.40	
acramento	Sacramento.										. 17		- 04	. 22						.23	200	. 21	. 29	****	. 20	.14				45	7 00	1.07	
alinas	do										.00	1	.00		.16	3		.00	.00	. 11	. 20	2.00	.38		3. 41	.31	1 1	1		. 94	. 19	. 48	
an Bernardino	do																				. 02	.01	.31										9 (
an Diego an Francisco	do										1		46								. 13	.01	.34			. 21					. 02	.01	
an Jacinto	do			-					****	****	. 10		. 40				****	.00		. 20	18	67	. 74		. 23	. 13				. 30	. 98	1.14	
an Jacinto an Jose	do										.01	T.	. 47	. 3!	5					.11	.02	. 53	.20	.01	. 12	. 40	3			.00	. 12	.50	0 8
an Luis Obispo an Mateo	do												T.	. 42	2					. 12	.01	. 15	1.09	.07	. 69	1 . 44				. L. U	4 .99	.86	8
an Miguel	do	****										. 00	. 13							. 10	. 25		. 98	.48	. 03	. 20				23	3 .96	. 98	
an Miguel Island.	Ocean					- Land					1		1		1	1	1	1			100									1		1	
anger	San Joaquin																																
anger- anta Ana Iver- anta Barbara. anta Clara. anta Clara. anta Margarita. anta Monica. anta Rosa. ausalito elima. even Oaks. hively.	Coast																				.10		. 92			.4	2				. 18	.01	4
anta Clara	do											.0	T	. 50	2 .0			T	****	10	.00	.00	. 60		.00	50	8 .0			10	0 .17	10	3
anta Cruz	do										.13	2	. 30	)						. 26		1.70	.3	.13	2 1. 60	.2	0			1. 12	3 1. 45	2.00	)
anta Margarita	do																																
anta Monica	do										****	45			.4				1/	20	10		1 7	20	43	.6					20	4.00	1
ausalito	Coast											. 1	T.	.2	5			T.	1.10	.08	.06	. 13	.74	.20	0 .42	. 2	3			T.	1.10	1.75	5
elma	San Joaquin													.1	l						. 18	. 18	3		57					50	0	. 92	2
even Oaks	do						00	8			4	1 2		****							.08	1 0	4		2.26	1.1	3			1.17	1 1 40	2 45	
ierra Madre	do														. 3	0		- 181			. 9	1.00	77	1.12	2.16	3	2				1.93	3.40	2 1
ierraville	M't'n Lakes			1	1	1		1	1	1000	1 16	0	24			1	110	)	30	N		21	H	1 19	9				- 41	12 00	0/5 50	1 49	2 1
squoc Ranch	Coast																									1							
isson	Coast	1::-							****		. 12		1.0	110	0						. 30	. 30	51		1.8	3	5 1	8	1	. 00	0. 1	1.00	1
onora	San Joaquin.													1.0	3					.30	T.		1.6	.63	3	1.0	5			34	4 .47	.10	0
. E. Farallon	Sacramento . Coast																																
preckels	San Josquin										***			.1	.00	3				90	. 22	. 03	2 2	1 .1	2	.3	1 .1	2		. 01	1 1 20	.30	3
quirrel Inn	Coast																			. 20	T	1	1.2	.2	0	5	8 .2	6		8	. 10	1.16	6
tanwood	Sacramento.												1.34					1.54			.00	.75	2.0	1.6	8 2, 41	4.7	6				. 2.33	8. 22	22
tirling City	do											. 9									. 2	. 84	3.01	.8	.50	3.9	0 .7	5			2.10	10.10	0 2
torev	oan Joaquin.	1										. 1		.3						. 24	15	. 08	3:	. 36		1.2	0			. 49	.38	.43	3
uisun	Sacramento.								.08			.1	5	.2	2 .00	6					.3	.15	1.02	.20	22	.8	5 .00	2			. 67	3.2	5
ulphur Banks	do											. 40	)	.4	5							1.00	1.10	. 50	1.50	. 6	8				. 2.10	1.8	7
pringville. quirrel Inn tanwood tirling City. ttockton (S. H.). torey. uisun. uilphur Banks. ummit. usanville. 'amarack. 'ehachapi.	M't'r I -											. 20	2	. 40	.2			.30		.10	.20	1.20	2.00	.80	1.90	1.7	0	. 1	0	3	8. 0	2.0	01
amarack	Sacramento		1	8							1	1 00	. 02	7	3 4			10	00	90	90	1.20	118	-42	90	1.2	0 .7	0 4	0	0 4	8 1 7	1.7	0
			-1 .0		0 000				10000	10000	10000	1 0 000		1 0 6 5	e + 41																		ME

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Table 2.—Daily precipitation for December, 1913. District No. 11—Continued.

																Da	y of 1	nont	th.														
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
California—Contd.																																	
ejon Rancho	San Joaquin.																																‡2.
hree Rivers	do													.04	.16					.36	.16	T.	. 68	.11	T.	. 28		T.		.05	. 68	.32	2.
owle	Sacramento.											. 83	. 65						T.	T.	.10	.30	.68 3.40	. 65	.30	2.75	1.58				.70	5.55	16.
racy	San Joaquin.	.18										.04		. 44		.04					.10			.32	.01						. 13	. 14	1.
ulare	do													.06						.02			.14	. 04						.24	. 29		0.
ustin (near)	Coast																			.02		.05	. 45			.09	.16				. 45		1.
kiah	do											. 52						.07		.35		.87	1.85 1.57	.11	2.21	1.12					2.18	3.10	13.
pper Lake	Sacramento.																					.40	1.57	.34	1.70	.89				. 50		2.98	11.
pper Mattole	Coast	T.						.13				1.29	.02	2.09	.41			. 35	. 05	.07	.10	. 23	1.33	. 33	1.84	2.51	.07		.07	. 49	1.81	6.40	19.
acaville	Sacramento.											.37		.21							. 29	.14	3.14	. 25	. 61	1.43	. 23				.78	4.90	12.
alley Springs	San Joaquin.										. 13			1.00						. 32		. 94	.19			. 41				.32	. 28	1.88	5.
isalia	do													.30						.70			.10			.33					.30	. 20	1.
Varner Springs	Coast																			.18			. 50		.06	.18					.06		0.
Vasco.	San Joaquin.						1	1				1			. 23									.09		. 20				. 22		. 26	1.
Vatsonville	Coast						1					. 13	. 50	.05						.23	. 03	1.71	. 53	.02	.86	.07				. 89	1.03	1.99	8.
Veaverville	do				1		1				.12			. 61				. 15		.31	.09	.90	. 53	. 20	1.75	.78		.11		. 51	1.81	2.83	11.
Veitchpec	Klamath						1000	.18			.31	. 28		.86	. 03			.70	.09		. 23	1.53	. 53	. 54	2.03	1.84	0.14	.09	.06	.74	1.80	3.73	16.
Vest Branch	Sacramento.						1													. 05	.06	.38	2.52	.67	1.76	3.29				. 65	3,60	10,00	25.
Vestlev	San Joaquin.		10000		1									19							13		. 56		.11						. 25	. 15	1.
Vest Point	do		0000				10000		****			14		.81	35			****	. 24		23	01	1.57	71	02	1.09	.50				.45	2.47	8.
Vest Saticov	Coast				1									.01		****			. 2.7		. 20	. 02			. 02	2.00	.00				. 40		1
Vheatland	Sacramento.				1							38	T.	63				****		.20	. 03	15	.74	.16	.54	72				48	1.17	1.66	6.
Villows	do		****	****		****	****				08	39	4.	26			****	01		00	01	66	.90	06	1 57	.60	.01	01		57	1.12	.74	
orba Linda	Coast	****			1						.00			. 20				.01		.00	.01	.00	40	.00	21.01	43	00			. 01	48		i.
osemite	San Joaquin.						****							****						****	***		. 45	****	***	. 70	.00	****		****	* 2017		

\* Precipitation included in that of the next measurement.

\$ Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

Table 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 11, California.

														(	Californ	nia.												
Date.		view,	Altı	ıras.	Bars	tow.	Bran	scom.	Bray	wley.	Col	usa.	Eur	eka.	Free	sno.	Indep		Ange		Mot		Nev. Cit		Por vil		Re	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1 2 3 4 5	36 38 41 40 50	24 18 19 15 17	42 45 45 48 51	19 20 12 11 11	69 71 74 70 69	40 43 47 40 36	62 63 60 59 58	29 31 30 29 29	63 60 64 66 69	41 40 43 32 35	59 58 54 49 52	43 40 34 29 30	51 53 63 50 51	37 36 38 41 40	54 56 56 58 55	34 37 35 33 35	44 42 - 39 44 61	29 25 24 18 20	61 63 62 62 62	46 44 44 43 42	53 49 50 48 50	43 42 42 42 36 39	63 62 59 57 64	29 23 23 21 21 22	52 55 54 55 54	31 34 31 29 30	61 60 62 53 60	44 42 36 31 32
6 7 8 9	48 51 50 51 49	26 23 20 21 25	54 56 58 57 56	13 21 14 16 21	71 66 69 70 68	39 43 48 50 48	58 62 65 67 60	28 33 35 49 51	72 75 73 74 74	32 35 36 37 35	44 43 43 46 44	30 33 33 32 33	54 52 48 66 66	42 46 44 39 53	57 50 55 62 65	35 35 30 29 33	59 53 56 55 51	29 30 24 25 24	66 77 77 78 78	43 50 51 55 50	49 51 56 60 50	35 43 43 42 44	62 66 70 71 63	24 26 27 26 30	59 55 58 60 68	30 35 33 30 34	48 63 63 58 48	31 40 36 34 36
11 12 13 14	43	33 26 31 24 20	51 50 44 42 50	34 21 21 20 11	74 72 66 62 60	50 52 54 50 45	55 51 48 49 58	41 45 37 33 27	62 72 71 68 74	36 36 34 42 42	55 53 52 56 55	43 40 47 37 35	62 65 56 52 52	49 48 46 41 36	65 66 56 48 55	44 39 48 38 39	53 50 52 48 52	24 20 30 36 32	71 73 63 62 70	49 50 47 50 49	51 49 44 46 48	45 40 40 37 42	62 58 47 59 61	39 29 34 25 26	68 66 60 50 50	39 36 39 47 40	53 51 54 58 62	46 44 46 40 40
16 17 18 19	34	19 26 14 24 21	46 38 42 36 39	11 23 11 7 15	62 65 58 61 56	46 46 41 36 34	53 51 53 42 40	28 38 25 35 33	71 62 69 66 58	39 43 36 39 44	50 49 48 44 45	30 28 32 39 38	54 52 48 49 51	38 39 38 44 44	52 56 45 42 54	44 41 39 37 40	48 50 44 35 34	31 27 22 19 22	59 62 60 58 59	47 49 44 45 47	49 48 43 38 40	40 36 33 31 32	56 42 49 37 39	25 33 22 28 31	56 56 44 48 53	46 40 40 36 38	44 49 48 42 44	38 38 31 40 40
21 22 23 24 25	34 29 29	18 24 17 10 29	34 36 38 35 41	7 25 8 1 26	58 52 56 59 60	27 26 32 30 40	43 40 40 45 46	37 33 30 34 35	62 67 67 67 67	36 43 41 42 43	45 54 49 44 55	40 40 33 38 38	53 50 49 55 53	46 41 40 46 44	50 57 53 54 57	36 45 44 46 47	38 37 42 38 43	20 24 20 22 28	60 54 57 61 55	44 47 45 44 50	48 48 40 47 46	36 34 33 38 37	38 44 45 44 44	26 35 29 32 37	54 56 55 57 58	35 44 46 44 44	42 49 45 42 50	37 37 40 34 36
26 27 28 29 30	35 28 43 34 32	16 9 26 14 24 30	43 34 43 41 40 40	21 6 25 19 27 32	65 60 62 65 61 73	35 26 36 26 34 42	51 51 57 55 51 53	28 35 33 38 41 46	67 66 67 67 66 71	37 38 42 36 31 45	51 48 54 48 54 54	36 38 35 41 44 54	53 55 55 57 59 62	39 42 38 48 50 46	47 45 45 49 57 64	38 38 41 40 47 53	46 38 44 43 38 60	20 18 28 18 30 30	61 64 68 59 56 59	47 46 47 45 49 53	45 45 48 46 50 50	37 35 36 40 44 46	55 46 61 47 47 49	27 28 29 29 39 44	54 53 48 61 63 68	44 40 40 38 49 53	50 44 59 44 53 56	32 39 36 41 42 53
31 Mns	34 39.1	30 21. 4	40	32 17.1	73 64. 6	40.1	53 53.1	46 34.7	67.6	45 38. 4	50.3	36.9		46				30 24. 8		53 47. 2	47.9	46 38. 7		28.6	68 56. 4		5	56 2.1

													Califo	ornia.												
Date.	Redl	ands.	Sacrai	mento.	San I	Diego.		an cisco.	San	Jose.		Luis spo.	Sar Bark		Santa	Rosa.	Siss	on.	Stoc	kton.	Sum	mit.	Susar	nville.	Yose	mite.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min.
1 2 3 4 5	56 56 56 58 59	45 35 34 33 33	60 59 55 54 52	44 41 35 31 32	63 63 62 62 60	44 46 44 46 43	66 58 59 54 54	52 48 46 46 42	65 61 59 57 55	44 38 31 32 36	61 62 60 57 60	39 33 32 31 38	59 64 62 60 60	37 34 36 36 36 36	58 68 57 61 60	38 31 27 32 30	47 43 44 45 43	22 24 22 23 24	60 53 52 52 49	38 32 31 31 30	32 30 34 34 39	17 17 16 15 28			54 50 50 48 50	25 20 14 12 12
6 7 8 9 10	73	33 41 38 40 41	52 46 42 42 49	30 37 34 34 35	62 67 69 72 72	45 46 51 54 50	51 54 58 57 57	45 45 44 47 45	50 60 59 65 64	38 33 32 33 39	60 72 72 76 61	33 43 40 39 38	62 72 73 75 68	37 42 43 44 43	58 52 52 60 59	38 38 38 42 31	46 43 42 45 46	20 24 25 27 28	40 44 42 42 49	30 33 34 34 34 35	44 44 42 43 42	23 23 21 22 26			50 55 53 50 55	17 22 - 18 17 18
11	73 65	40 39 41 43 49	59 57 56 56 56	46 42 48 40 38	63 66 65 63 62	49 50 46 52 46	60 60 57 57 57 58	51 50 49 46 41	67 66 60 55 52	48 44 41 39 38	68 65 54 58 63	44 43 45 45 49	68 68 55 64 67	40 39 42 45 39	58 58 62 58 58	50 47 42 32 30	45 45 39 40 40	27 32 22 22 22 22	60 58 56 58 48	37 44 46 35 34	40 40 38 36 36 32	28 24 27 24 21			60 57 65 47 47	19 16 25 25 25 25
16 17 18 19	60 57	40 42 35 35 40	48 52 48 42 46	41 41 36 39 39	62 60 62 62 58	50 49 46 46 46 49	49 54 52 46 48	43 46 43 41 41	54 60 52 49 53	34 37 32 36 40	60 61 55 50 54	42 40 40 33 40	58 64 60 58 58	41 45 36 39 39	58 55 52 43 46	31 44 29 32 35	32 38 44 44 45	25 20 20 22 22 27	47 52 45 46 48	36 38 38 36 38	39 38 34 26 30	21 16 9 14 20			43 50 45 45 45 40	18 22 18 15 7
21 22 23 24 25	52 55 58	36 40 40 37 45	49 56 46 52 58	39 44 40 43 47	61 57 62 60 58	48 50 48 47 51	54 56 48 57 55	44 44 44 47 49	52 58 52 59 58	43 47 44 49 44	54 55 57 55 57	43 43 42 43 48	54 57 60 57 58	43 49 48 43 50	55 56 56 58 55	42 46 34 39 35	40 40 34 30 40	26 26 22 26 25	50 56 52 54 56	40 41 38 41 47	27 32 26 34 32	15 21 17 15 26			35 36 41 40 40	14 26 24 26 27
26	60 63 59 55	45 35 37 34 46 50	49 48 53 49 56 58	40 40 37 41 48 53	63 61 61 61 57 62	52 48 48 46 51 54	54 52 54 55 60 60	44 45 44 46 50 52	55 54 56 53 61 62	36 40 36 43 51 56	58 58 61 53 55 56	43 38 34 37 50 54	60 61 62 55 54 58	42 41 40 40 50 53	57 58 60 56 55 58	31 41 40 31 45 45	47 32 33 30 32 40	24 25 26 24 25 26	47 48 50 50 58 60	40 39 38 39 40 48	30 28 29 31 34 44	10 12 23 22 27 27 33			40 39 44 40 40 44	19 17 23 21 20 24
Mns	61.5	30.1	51.6	39.8	62.5	48.2	55, 3	45.8	57.5	39.8	59.5	40.6	61.8	41.7	56.7	37.0	40.5	24.3	51.2	37.5	35, 0	20, 4		*****	46. 9	19.5

\*, b, °, etc., indicate respectively 1, 2, 3, etc., days missing from the recor §§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR DECEMBER, 1913.

# DISTRICT NO. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

#### GENERAL SUMMARY.

The month as a whole was favorable for agricultural, transportation, and construction interests. There were no severe cold spells and while the precipitation was deficient it was sufficient to thoroughly wet the soil to a good depth where not frozen. The storms of the last few days, while severe along the coast, did not cause as much damage to shipping as was expected. During the last half of the month trains were delayed for a short period in southern Idaho on account of drifting snow. Stock is doing well on the winter feeding grounds and fall grain is in good condition.

#### TEMPERATURE.

It was warmer than usual at a few scattered places in Idaho and Oregon and generally over central and northern Washington; elsewhere the temperature was below normal, being decidedly so in the Snake River watershed, along the Columbia River between Oregon and Washington, and in central Oregon and the Willamette Valley

The mean temperature of the district, as determined from the records of 297 stations, was 30.6°, which was 1.2° below normal. The highest temperature, 72°, was recorded at Cliff, Oreg., on the 7th, and the lowest temperature, -36°, occurred at Snake River, Wyo., on the 29th. The greatest daily range in temperature, 63°, was at Crescent, Oreg. The highest monthly mean, 47.7°, was at Brookings, Oreg., and the lowest, 8.4°, was recorded at Snake River, Wyo.

The following table shows for comparative purposes the mean temperature and departure from normal for the States of Oregon, Washington, and Idaho, and those portions of Montana and Wyoming in District No. 12 for the month of December during the last five years:

	Ore	gon.		hing- on.	Ida	aho.	Mon	tana.	Wyo	ming.
Years.	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.	Mean.	Departure.
1900	30. 9 38. 6 55. 1 35. 5 34. 0	-6.0 +1.4 -0.9 -0.3 -1.7	29. 1 36. 8 34. 1 35. 8 34. 0	-6.3 +1.7 -0.6 +0.6 -0.1	20. 6 30. 3 24. 8 26. 6 24. 9	-6.6 +3.4 -2.5 -0.5 -1.8	20. 4 27. 1 23. 7 27. 9 24. 2	-4.2 +3.3 -2.7 +1.5 -2.0	10. 1 18. 2 11. 3 14. 2 15. 1	-10. - 1. - 6. - 1. - 2.

#### PRECIPITATION.

While the precipitation in southwestern Idaho and southeastern Oregon was normal or slightly above, in other portions of the district it was much less than the average, particularly so in the Sound country, along the coast and in the Willamette Valley where the rainfall

was from 1 to nearly 15 inches below the December normal.

The snowfall as a rule was not up to the average; in some instances, owing to the mild temperature, the snow melted as it fell, and heavy rains of the last few days caused much of the previous snow to disappear from the lower levels and little remained on the ground at the end of the month, except at the higher altitudes.

The average precipitation for the district, as computed from the records of 389 stations, was 2.27 inches, which was 1.84 inches below the normal. The greatest 24-hour rainfall, 2.04 inches, occurred at Soldier Creek, Idaho, and Williams, Oreg. The greatest monthly amount, 15.72 inches, was recorded at Happy Home, Oreg., and the least monthly amount, 0.04 of an inch, fell at Como and Hamilton, Mont. Snowfall to the depth of 58.7 inches was reported from Pine, Idaho.

The average monthly precipitation with departure from normal for the month of December during the last five years is shown in the following table for the States of Oregon, Washington, and Idaho, and for those portions of Montana and Wyoming lying in district No. 12:

	Or	egon.	Wash	ington.	Id	laho.	Mon	ntana.	Wyo	ming.
Years.	Mean.	Depar- ture.	Mean.	Depar- ture.	Mean.	Depar- ture.	Mean.	Depar- ture.	Mean.	Depar- ture.
1909 1910 1911 1912 1913	4. 13 3. 59 4. 06 4. 83 2. 96	-2.34 -2.45 -1.80 -0.37 -2.01	3. 26 3. 97 3. 77 5. 13 2. 23	-1.78 -0.71 -1.28 -0.28 -2.57	1. 92 1. 61 1. 34 1. 75 1. 65	-0.14 -0.61 -0.48 -0.47 -0.36	1. 04 0. 89 0. 90 1. 87 0. 47	$     \begin{array}{r}       -0.31 \\       -0.68 \\       -0.90 \\       -0.25 \\       -1.06     \end{array} $	1. 15 1. 90 1. 08 1. 57 1. 01	-0. 2 -0. 3 -0. 6 -0. 2

#### THE RIVERS.

Rivers were below normal throughout the Columbia drainage area. The greatest deficiency was in the Willamette River, while in the Snake and upper Columbia the departures from normal were very slight. The following table summarizes river conditions throughout the district:

Station.	River.	High- est.	Date.	Low- est.	Date.	Mean	Nor- mal,
Albany	Willamette	8.3	lst	2.6	22d		7.1
Salem	do	8.3	1st.	2.0	22d	3.6	7.
Eugene			1st.	3.1	*22d	4.0	5.
Wilsonville	do	13.8	1st	4.6	18th	6.9	9.
Oregon City			1st.	3.0	*17th	4.8	
Portland			1st	1.4	*21st	3.5	5.
Jefferson	Santiam	5.8	31st	2.2	*21st	3.2	4.
McMinnville			1st	4.3	11th	7.2	9.
Cazadero		3.6	lst	1.5	*28th	2.0	
Kamiah			1st.	1.0	5th	2.8	
Weiser			1st	3.6	20th	4.1	
Lewiston			*lst	1.8	*21st	2.2	2.
Riparia			lst		*21st	2.9	3.
Wenatchee			*1st		*29th	5.3	6.
Umatilla			1st.	1.7	30th	2.7	3.
The Dalles			lst	1.1	*29th	2.4	4.
Cascade Locks		2.9	lst	0.2	*29th	1.4	3.
Vancouver		5.4	Ist.	0.8	21st	2.4	4.

Note.—The asterisk indicates that the stage was observed on more than one date.

## MISCELLANEOUS PHENOMENA.

The prevailing winds were easterly, which in some sections was unusual for December. The wind movement in general was less than the average, but there were a number of days with high winds along the coast, and these winds, with high tides and heavy seas, caused considerable damage. Maximum velocities above 50 miles an hour were reported as follows: North Head, Wash., 56 on the 6th, 60 on the 13th, 68 on the 27th, and 52 on the

30th, all from the southeast; Tatoosh Island, Wash., 56 south, on the 6th, 62 on the 21st, 56 on the 24th, and 52 on the 28th, the last three from the east.

Some Chinook winds were experienced in the eastern portion of the district on the 30th and 31st.

A thunderstorm occurred in southwestern Oregon on the 21st.

An ice storm or so-called silver thaw was reported from stations in Wasco County, Oreg., during the last three days.

28854-14---9

Table 1.—Climatological data for December, 1913. District No. 12, Columbia Valley.

- 41 14   1			year	Temp	perature	, in	degr	ees Fal	reni	neit.	Prec	cipitation	, in in	cnes.	days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest,	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 bours.	Total snowfall, unmelted.	(umber of rainy day 0.01 inch or more.	mber of	Number of part- ly cloudy days.	u m l	Prevailing wind	Observers.
		-	-	-	-	-	1	-	-		-	-	-	T	Z	-		-		
Montana.						-														
Anaconda	Deer Lodge		11	24.2	- 1.7	50 58	31	10	21 22	34 32	0.41	- 0.29	0.20	4.8	3	15	12	16	ne.	C. D. Demond. J. L. Galen.
Butte	Silver Bow	5,716 3,100	18 17	23. 0 24. 2	- 2.7 - 1.0	44 43	10	3	22 21	28 26	0.12	- 0.62	0.08	1.5	6	21 12	6 0	4 19	nw. ne.	J. R. Wharton. J. M. Grist.
Columbia Falls	Ravalli	3,750	4	25.4	- 1.0	46	7	2	22 21	23	0,04		0.03	2.0	2 2	16	4	11		Hiram Platt.
Dayton Deer Lodge	Flathead	2,925 4,509	8	28.1		46	15	9	27	24	0.37		0.33	3.0	2	3	6	22		A. J. Ruechel. H. B. Grant.
East Anaconda	Deer Lodge Lincoln	5,500 2,975	7 7	24.7 22.1		400	10 16	- 8 - 5	22 25	29 32	0.37	******	0,21	2.2 4.5	4	15	12 7	4 18	nw.	C. D. Demond. Mike Petery.
Fortine	Ravalli	3,524	10	21.2	- 6.5	46	8	- 1	21	29	0.04	- 0.51	0.04	0.5	1	27	1	3	S.	Hamilton Chamber of Co
Hat Creek	Powell	6,000 3,150	3	20.5		50	31	- 4	22	36	0.32		0, 15 0, 26	7.7	6 4	7 10	18 16	6 5	W. SW.	M. K. Landreth. U. S. Forest Service.
Heron	Sanders	2,261 2,965	16	24 8	+ 0.9	44	-7	11	24	24	0.48	- 1.37	0, 24	4.8	7	5	7	19	nw.	E. Knott. U. S. Weather Bureau.
ibby	Lincoln	2,075	3	26.0	- 1.9	44	7	8	21	26	0.76		0.41	9.3	4	7	11	13		U. S. Forest Service.
fissoula	Missoula	3,225 4,050	13		- 2.0	44	16	- 9	20	41	0,36		0.09	6.0	6	3	27	î	w.	Prof. M. J. Elrod. S. B. Muchmore.
Philipsburg	Granite	5,273 2,473	9 14	24.2	- 1.8 - 1.7	50	8 15	- 2 12	21 22	39 27	0, 20	- 0.23 - 0.22	0.15	2.5	2 4	22b	3b	4b	SW. Se.	G. T. Bramble. James M. Self.
Pleasant Valley	Flathead	3,500	5 5	21.0	******	45	15 15	0 9	20 28	35 18	0.76		0, 40	9.5	5	9	2	20		A. D. Stillman. F. P. Brown.
Polson	Missoula	2,911	7	25. 4	******		15	- 1	28	27	0, 41		0.26	8. 0 6. 1	5	4	12	15		U. S. Reclamation Service
altesetevensville	do	3,600	8	22, 4d		468	8	1	21	318	0.07	- 2.94	0.52	11.0	6 2	18	0 4	22 9	w. n.	Martin S. Pixley. University Orchard Co.
hompson Falls	Sanders	2,424 2,375	1	26.0		48	15	6	20 19†	22 43	0.38		0.21 1.21	2.2 17.0	3	17 11	5 0	9 20	W. SW.	U. S. Forest Service.
rout Creek	Ravalli	3,537		22.0			7	0	21	35			0.08	1.3	2	20	5	6	SW.	James Hylent, R. W. Fisher. G. E. Luce.
Villow Glen St'k Farm.	Deer Lodge	5,064	2	*****			****					******	*****	*****	****	****			******	G. E. Luce.
Wyoming.																				
fton	Lincoln	6,200 6,500	9 3	16.1 17.6	- 2.5		11 10	- 23 - 15	21	38	0.88 0.56	- 0,29	0.30	10.0	6 3	20 15	4 3	7 13	sw.	A. V. Call. Mrs. Lucy Brown.
	Yellowstone Park.	6,500	1							****	2.06		0.63	25.9	11	13	10	8	SW.	U. S. Army.
Bedfordforan	do	5,900 6,770	13	16.4		39 36	5	- 17 - 27	21 29	36 43	1.11 0.42	- 0.25	0.32	18.9	6 4	19	3 8	9	w.	C. G. Heiner. U. S. Reclamation Service
nake River	Yellowstone Park.	7,000	7	8.4			15		29	54	1.24		0.61	13.0	3	24	2	5	W.	U. S. Army.
Nevada.																				
fold Creek	Elko	6,600	0	21.1			9	- 15 - 12b	21	46	1.68		0.68	8.0	5	10	6	15	n.	Forest Supervisor.
an Jacinto	do		8	20.0a		44	31	- 120	20	416	0.71		0.45	6.3	2		****			F. W. McEntire.
Utah.																				
tandrod	Box Elder			24.5		47	31	2ª	29	27	0.57		0.19	8.9	6	20	5	6	sw.	T. B. Jones.
Idaho.																				
lbion	Cassiado	4, 650	10	21.5	- 6.9	51	31	- 16	21	44	0.60		0.20	4.5	5	17 21	10	10	W.	C. E. Boeock. Wm. D. Cahoon.
merican Falls	Power	4,341	21		- 7.2			- 16a			0.66	- 0.62	0.20	11.0	5		****		ne.	Mrs. I. M. Arroll.
rrowrock	Boise	3, 100 2, 500	1					- 1 8°	21	32 21°	3.35		1.07 0.23	22.0	8 5	20	3	8	e. ne.	U. S. Reclamation Service W. H. Daugs,
lackfoot	BinghamBannoek	4,503	17	21.6	- 1.8	43	15	- 11 - 16	21† 21	40 53	1.15	+ 0.27		8. 0 10. 0	5	7 17	16	8 13	ne.	E. A. Dowd. S. C. Waddell.
logus Creek	Boise	4,200	4					*****			2.10		0.72	22.0	7	12	12	7	******	F. P. Ingraham.
loise King	Elmore	4,000	27	21 0	- 3.3	50	6	- 14	24	40	2.40	+ 0.68	1.50	19. 2 14. 5	10	10 22	6	15	nw.	U. S. Weather Bureau. Arthur W. Stevens.
onners Ferry	Bonner	1,850 4,800	6 3	27.5		42	1†	10	22	21	0.60 $3.52$	*******		6.0 39.7	1 9	20 18	0	11		W. H. Heideman. Patrick Moriarty.
uhl	Twin Falls	3,800	6	0 × 0	******	42	14	- 5	21	28	1.05		0.30	8.0	5	14	9	8	е.	S. C. Orr.
aldwell	Shoshone	4, 082 2, 372	8				31	3	21 21	30 31	2.16 1.71	******		6.9 23.0	5 8	15	3 11	13 11	e. e.	E. K. Barnum. Wm. J. Boone.
aldwell Exp. Station ambridge	Washington	2,372 2,651	17		+ 1.1	47	14	10	28	28	2.32	- 0.81		18.6	7	17	····	13	nw.	C. B. Hampson. Chas. H. Shepherd.
hallis	Custer	5,300		14.6		39	7	- 15	24	38	2.30		1.20		6	9	13	9 8	n.	J. A. Harrington.
hesterfieldlarks Fork	Bannoek	5.424 2,084	16	29.9	+ 1.8	47	14	- 16 14	29 20	52 16	0.81	- 0.47	0.29	11.0	3 5	12 8	11 10	13	nw. se.	Chas. S. West. Wm. Potter.
oeur d'Alene	Kootenai	2, 157 3, 059	18	33.1	+ 1.4	49 45°	15 14	21	6†	23	2.08			3.5 15.5	8	8	ii.	12	******	J. H. O'Rourke. F. L. Featherston.
ouncilottonwood Creek	Boise										4.05		1.39	32.4	8	15	2	14	S.	Herman Schultz.
uldesaceary	Nez Perce Latah	1,520 2,854	1	31.2		47 50	14 11†	10	21	25 28 39	0.62			7.9	9	8	12 7	15 16	SW.	Mrs. B. B. Caldwell. W. J. Davis.
riggs	Madison	6, 097 2, 350	6	16.6		41 48	7	- 17 8	21 24†	39 27	0.82		0.55	6.0 18.0	5	19	1 6	11 12	e.	W. H. Durrant. U. S. Forest Service.
arnet	Elmore	2, 575	13	30.2	- 4.0	56	11	0	21	35	1.25	+ 0.57		8.0	3	17	5	9	e.	A. A. Kenison.
enevalenns Ferry	Bear Lake	6, 171 2, 569	4	00 1	******	52	11	- 6	21	36	1. 22 2. 01		0.84	11.0	3 5	23 19	3	5 11	e.	F. W. Boehme. I. E. Perkins.
ooding	Gooding Bannock	3,572 5,400	3 6				14	- 12	21	30	1.30	*******	0.40	11.0	8	15	8	8		J. S. Welch.
randview	Owyhee	2,300	3		******		31	- 10	21	41	0.85		0.41	8.0	4	17	5	9	se.	Harvey E. Hanna.
rimes Passuffey	Bolse Owyhee	5,200 2,381	3 4	29.6		54	31	8	21†	30	4.08 1.08		0.97	39.6 9.5	5	20	9	2	e.	Jos. M. Clarke. Fred Perry.
[alley	Blaine Twin Falls	5, 347 4, 550	10	21.8	+ 0.8	45	11	- 6 - 5	20 21	37 32		+ 0.65	1.20 0.26	31.2 6.4	8	16 12	6	9	SW.	U. S. Forest Service. Carl E. Tappan.
lotspring	Owyhee	2,590	7	27.2	******	54	11+		21	32	1.22		0.48	12.0	5	17	4	10		J. M. Waterhouse.
daho Citydaho Falls	Boise Bonneville	4,000 4,742	11 18	21.6	- 0.6	42	12	- 15	22	35		- 0.39 - 0.26	0.70	34.8 14.0	6	13	2	16	******	Mrs. Emma Hammer. Dr. T. M. Bridges. Capt. O. M. Carter.
	Owyhee	2,480		26.0		53	12	- 16	21	41				16.0	7	18	2	11	e.	Capt. O. M. Carter.
ndian Cove			A								2 10		0.56	21.7	7	1.0		1/4	n	A. M. Honko
ndian Covendian Valleyrwin	Adams Bonneville Shoshone	2,999 6,500 2,305	11 8	21.2	+ 1.6		9†	- 16 11	21 20	41 27				7.0 4.0	5 7	13 17 22	4 4 1	14 10 8	n. e.	A. M. Henke. Miss Mamie Weeks. W. McM. Huff.

TABLE 1 .- Climatological data for December, 1913. District No. 12-Continued.

			years	Temp	erature	, in	degre	es Fah	reni	heit.	Prec	ipitation	, in in	ches.	days,		Sky.		direc	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind c	Observers.
Idaho-Continued.																				LAW - mark
ooskiaakeview	IdahoBonner	1, 261 2, 250	15	28. 5d 30, 5	- 0.9	47d 40	7†	8d	21 30	25d 12	0.80	- 2.71	0.40	8.0	4 5	7	15	9	sw.	U. S. Forest Service. E. D. Faust.
andore	Adams	5, 300	8	04 4		440		22	21	29a		2011	1.43	31.4	10					Mrs. Emma L. Brown.
eadore	Lemhi Nez Perce	757	19	33.4	- 4.1	50	31	15	21	21	0.75	- 0.77	0.48	6.5		11	7	13	8.	Tom Keating. U.S. Weather Bureau.
ewistonittle Camas	Elmore	5,000	3	30. 3	- 4. 1		91				4.68	- 0.11	0. 10	44.0	5	12 13	6	13	6.	Solon McCoy.
oon Creek	Custer	6,000	3 5				11	- 13 - 8	24 24	37	0.56			7.5	5	13	14	16	S. DW.	Mrs. Mary Williams. U. S. Forest Service.
ackayalad	Oneida	5,897 4,700		19.6		45	9	- 8	54	36	0. 20	*******	0.25	2.0		10	13		344.	W. O. Thomas.
eridian	Ada	2,657	2 2		******		31	- 1	21†		2.53		0.95	25.0 22.2	8 7	11	9	11	se. n.	A. W. Garrett. I. S. Carter.
esaiddle Fork	AdamsIdaho	3,275 1,397	2			43	7† 5†	10 14	25 21	30 22	2.14 0.59		0. 32	5.7	5	11	7	26 13	ш.	Jos. McGhee.
ilner	Twin Falls	4, 110	9	22.6a	- 4.7	47=	31	- 11a	21	41*	1, 42	+ 0.35	0.46	13.5	6				w.	James K. Young.
ooreoscow	BlaineLatah	5,700 2,748	12 20		- 0.9	46	15	16	21	19	1.03	- 1.43	0.60	11.7	7	11	6	14	50.	Chas. B. Lemon. University of Idaho.
ountainhome	Elmore	3, 150	7	24.5		52	12	- 12	21	41	1,63	******	0.64	8.0	6	16	5	10	80.	Mrs. Ellen Manion.
[urtaugh[usselshell	Twin Falls Clearwater	3, 171	6	20. 20	******	47d	31	- 13°	28	41d	2. 14 1. 10			20.0	8	14	8	9	w.	J. E. Steinour. Henry R. Snyder.
ew Meadows	Adams	3,950	8			44	14	- 9 7	21	41	2.00		1.07	23.0	8	12	13	6	n.	Lee Highley.
ezperceakley	Lewis	3,082 4,700	3 19		- 3.0	45 49	11+		29 21	26 30	1. 23 0. 88	+ 0.32	0.51	13.0	6 3	14 20	9 5	8		P. Mitchell. John Adams.
'Hara Bar	Idaho	1,557	2																	J. D. Agnew.
rofino		1,027 5,946	18	29. 7 17. 9	2 0	39	14	12	21 24	21 28	1.36	- 0.68	0.38	9.7	7	8	18	6	nw.	Geo. Alteneder. John Norton.
arisayette		2, 159	21		-2.6 $-3.4$	47	1+	8	21	28	2.46	+ 1.02	0.86	21.1	8	9	7	15	n,	E. F. Allen.
ierson	Custer	7,000	4	11.4	******	41	10†	- 21	171	53	0.86			11.0	9	26 15	1	11	8.	David P. Clarke. Mrs. Jannie Potter.
ine leasant Valley	Elmore	4,100 3,000	3 5	26.2	******	51	11	- 3	21	35	4.05	*******	0.87	58, 7 19, 6	8	15	5 3 8	13	30.	C. E. Friedrich.
ocatello	Bannock	4, 483	13	23.7		45	10	- 8	21	31	0.84	- 0.02	0.48	5.9	8	7	8	16	80.	U. S. Weather Bureau.
ollockoplar	Idaho Bonnerville	2, 200 5, 500	3	33.0	- 2.9	51	14	- 12	201	24 36	0.80		0, 24	6.0	5	18	2	11		C. M. Lawrence.
orthill	Bonner	1,665	23	28.0	- 0.4	48 42	28	12	22	17	0.50	- 1.98	0.49	7.2	2	18	6 3	18		H. A. French.
riest River Experi-	do	2,500	1	27.5	******	36	15†	16	22	15	0,98	******	0.76	10.4	5	0	3	28	SW.	U. S. Forest Service.
ment Station No. 1. riest River Experi-	do	2,500	1	28,7		49	27	16	22	22	0.91		0.71	9.7	5	0	3	28	no.	Do.
ment Station No. 2.		.,,,,,,,																	-	Da
riest River Experi- ment Station No. 3.	do		1	26.8		42	1	11	22	25	0.91	******	0.72	10.0	5	0	3	28	ne.	Do.
yle Creek	Boise	3,100	3								3.41	*******	1.55	27.2	8	17	7	7	e.	P. V. Smith.
attlesnake	Elmore	4,000	3					- 126				*******		29.0 19.0	8	14	12	11 7	ne.	Richard M. Green. Idaho Irrigation Co.
ogerson	Lincoln Twin Falls	1,000		40.00				*****		0.3		********	0.00	29.0					*******	J. S. Bussell.
oseworth	do	4,650	6	21.2	******	43	ii	15	21	24	1.88	*******	0.72	18.5	8	12	20	12	ne. sw.	D. B. Hartwell. Will Parry.
upert t. Michael's Priory	Minidoka Idaho	4, 204 3, 811			******		7	- 15 12	21	34	0.76			6 9	8	111	5	15	SW.	Rev. Father Berthold, O. 8.
almon	Lemhi	4,040	7 2	19.8		41	1	- 5	21 20		0.32	*******		3.8	4	17	8	17	n.	E. K. Abbott. S. M. Moore.
andpoint heep Hill	Boise	2,086 5,000	3		******		1	14	20	17	0.62 5.59	*******		10.0 45.6	8	11	0	16	ne.	C. M. Gardner.
hoshone	Lincoln	3,968	5	22.6		41	11	- 7	21	29	1.31		0.62	10.5	6		21	4	ne.	Zell Truman. Russel Stoddard.
ilver Cityoldier Creek	Owyhee	6, 280 5, 755	5 2	21.10	******	48	10	- 0	20	35*	2, 23	********		17.5 35.5	8 7	8	11	12	50. nw.	J. E. Minear.
pringfield	Bingham	4,420	4	20.0		46	11	- 14	29	35	1.03		0. 27	14.4	5		9	14	SW.	Mrs. W. A. Edwards.
pring Hill	Ada Fremont	3,607 4,892	5	27.4		45 43	11 12	-15	20		2.96 1.49			23. 0 21. 0	8		6 3	12	nw.	Ray G. Lyons. Utah-Idaho Sugar.
unnyside	Elmore	3,500	3	30.6				50			0.68		0.60		2				nw.	Col. M. W. Wood.
ripod Mountain	Boise	4,300	3		******		15	-10	21	32	2.81 1.77			24.5 16.0	8 7	20   12	11	8	88.	Mrs. Verna Paddock. J. A. Waters.
win Falls pper Lost River	Custer			22.8				-10	21											J. B. Howell.
ernon	Fremont	5,050	14		- 0.1	45	10	- 7	21		0.17	- 1.38	0.10	6.0	3	13	9 5	9	ne. se.	A. M. Slatery. J. W. Lapish.
Veiser Vendell	Washington	2,114 3,400	1 4	30.6		49	11	10	20	30 29	2. 83 2. 26	*******	1.10	24.5 26.0	10	17	5	9	e	Chas. L. Dingler.
Veston	Franklin	4,460	14	23.0	- 1.3	48				29 35	0.98	+ 0.40	0.28	11.0	6	18	1	12	n.	Wm. T. Chatterton. D. Wm. Arrison.
Vhitebird	Idaho	3,000			******						0.34		0. 19	4.6	3	15	4	12	SW.	D. Will. AlfBoll.
Washington.																			-	
berdeen	Chehalis	162	22	41 4	+ 0.7	54	13	30	20	18	7.44	- 5.90	1.15	T.	22	4	9	18	е.	H. A. Benham.
nacortes	Skagit	60	19	41.8		57	4	27 2	19	236	1.38	- 2.44	0.55	0	6	13	18	0		Douglass Allmond. W. A. Hamilton.
natone	Asotin	2,800		26.4		44				26	1.25	-	0.60	12.5		. 10	11	10		W. A. Hamilton.
ntoine River Station	Okanogan Skagit	390	7	37.0		48	12	26					0.90	T.	10	10	3	18		Mrs. R. H. Thompson. Robt. M. White.
ellingham (near)	Whatcom	107	2	40.8		53	11	22	21	22	1.60		0.35	0	17	7	14	10		U.S. Bureau Plant Indust John W. Sheets.
lainelewett		2,200	16		+ 1.9	52	12	24	21	18	2. 15 3. 58		0.50				1	22	80.	John Burmeister.
remerton	Kitsap	40	15								2.93	- 3.63	0.57		10					U. S. Navy Yard. Mrs. H. F. Bertram.
rewster	Okanogan	1,620 685	3	28.6 40.7		40	1	10	20		1.44		0.59	14.8	15			19		Mrs. H. F. Bertram. Geo. C. Sears.
uckley umping Lake	Pierce Yakima	3,400	2	27.3		58 46	111	9	20 19	30	3.28		0.85	35.5	12	10	4	17		U.S. Reclamation Service
entralia	Lewis	212	20					22	21		3.38	- 4.22	0.97	T.	15	2	8	21	8.	I. S. Turner. Geo. Gibbs.
learbrook	Whatcom	1,930	10		+ 2.8	51 50	2	25 17	19	24 20	2. 13 1. 11	- 4.49 - 2.87	0.51	11.0	10		17	18	ne.	J. A. Balmer.
olfax	Whitman	2,300	24	31.7	$ \begin{array}{r} 0.0 \\ -2.0 \\ +2.0 \end{array} $	54	12	4	20	35	0.95	-1.88	0.35	5.0	5		0	15		I. B. Doolittle.
olville	Stevens	1,635 2,300	13	28.6	+ 2.0 + 1.7	40	12		20	20 20	0.84	- 1.05	0.51	8.5	7	5	10	15		W. L. Sax. Wm. Baines.
onconullyoulee City	Grant	2,400		. 26. 20		451	15	1 4	21	22	1.39		0.40	13.9	7	10	0	21		M. E. Jolly.
owiche	Yakima	1,874	2			50	1	17	23	24	0.74		0.20	14.0	6	9	6	16		U.S. Reclamation Service Charles Burns.
Parrington Pavenport	Snohomish	567 2, 450	4	27.4		41	11	7	21	19	1.40			12.7	8	15	9	7		James L. Thayer.
Dayton	Columbia	1,700	27	30.8	- 3.4	53	15 17	4	21	28	1.29	- 1.47		9.8	10	6	4			W. W. Hendron.
Deer Park	Spokane	2,050	5			46	17	8 27	21 21	25 18	1.21			11.8			14	10	n. s.	Robt. Allison, jr. Walter O. Eckert.
Petroit Pouglas Lake	Skagit	440				. 00	10	21			1.76		0.49	0	8					Michael Pecovitch.
ryden	Chelan	900	3							.1	1.57			22.3	10		7	15	nw.	Wenatchee Valley Gas Electric Co.

TABLE 1.—Climatological data for December, 1913. District No. 12—Continued.

			years.	Temp	erature	, in c	legre	es Fah	renh	neit.	Prec	ipitation	, in in	ches.	days,	-	Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part-	Number of cloudy days.	Prevailing wind tion.	Observers.
Washington-Contd.																				
Duckabush Ellensburg	Jefferson	380 1,571	25	38.2	+ 2.8	51 52	13 2	25 19	21 8†	17 28	7.50 0.88	- 0.53	1.20	13.0	9	10		16 27	w.	Frank S. Morton. R. Lee Barnes.
Eltopia	Franklin	598	2												14					Frank O. Young.
ForksFort Simcoe	Yakima	480 1,427	18				14	25	20	19	8. 27	*******	1.29	0	14					Ruth Palmer. Richard Newmark.
Gerome	Stevens	1,200	1	30.0		42		16	20	17	1.09	******	0.81	9.5	4	8		9		W. W. King.
Goat Lake Gold Basin		2,900 1,360	2								3.64	*******	1.82	3.0	3			****	******	C. M. Mackintosh. U. S. Forest Service.
Gold Creek	Yakima	2,600	4		******						0.77			9.0	6	2	21	8	******	John W. Anderson.
Gold Hill		4, 454 1, 600	7	31.4		48	11	9	24	23	1.76	- 0.83	0.40	13.0	9	3	9	19	w.	C. J. Vasper. KlickitatCountyAbstractCo
Granite Falls	Snohomish	397	10								2.81	- 4.72	0.68	0		9		12		C. H. Cleaver.
Guler	Klickitat Benton	2, 200 385	4	21 9		48	14	18	8	29	0.76		0.35	30. 4 7. 6	5	2	12	17	ne.	Frank Kuehnel. Frances Lee Bash.
Hanford Hatton		1,100	8	29.0		46	2		21	23	1.48		0.40	9.0		7	5	19	SW.	Wm. Goodenough.
Huntsville	Columbia	1,400	5								1.75		0.80	9.5		***		22	n.	Mrs. S. J. Hill. Mrs. Theo Wheeler.
Irene Mountain Kennewick	Okanogan Benton	2,700 368	18	31.80	- 4.1	60	i	12	241	31	0.41	+ 0.30	0.30	5.9		4	5	44		R. E. Reed.
Kent	King	53		40.1		59	11	20	21	25	3.03		0.59	0	13	0		22	S.	A. O. Jeffries.
Kettle Falls Kiona.	Benton	1, 265 430	7	33. 2		42 53	11	11 18	19 23	19 25	0.97		0.60	7.5		3 5		17 23	******	H. H. Cole. Dr. F. S. Hedger.
Knowlton (near)	Okanogan	3,800	7	28.1		48	1	12	20	28				23.2		6	1	24	se.	W. P. Jay.
KosmosLa Center		775 250	16	40.5	- 3.1	60	13	12 25 21 1	41	33 25	1.80	- 3.45	0.68	0.5		13		12	ne. se.	J. A. Ulsh. Joseph Bros.
La Crosse		1,400	4	30. 2	- 3.1	49	12	1	24	31	1.20		0.34	10.5	8	9	4	18		M. E. Schreck.
Lake Clealum	Kittitas	2,171	4	30.4		48	1	18 21	23 28	15	1.48		0.42	12.5		0		24		U. S. Reclamation Service.
Lake Kachess Lake Keechelus	do	2, 235 2, 479	5 5	30.1		43 42	1	20	28	12	3.36		0.31	12.0		0		22	e. se.	Do. Do.
Lakeside	Chelan	1,116	22	31.7	+ 2.0		1	21	20	15	1.39	- 0.56	0.62	15.5	8	0	10	21	0.	W. H. Van Meter.
Laurel Laurier	Klickitat	1,900 1,644	3	28.8		39	11	13	23	15	0.79		1.00	24.5 10.8		7 3		16 27	W.	Mrs. Minnie E. Strout. Mrs. J. S. Myers.
Lone Tree		9	4	44.0		56	12	34	201	12			0.80	0		3	15	13	е.	U. S. Engineer Corps.
Longmires Springs	Pierce	2,800 3,125	2 4	33.4		46	13	19	21	17	0.55		0.50	6.4	2	5 8				National Park Ranger. P. H. Leese.
Lost Creek	Okanogan Whatcom	3, 120		40.7		56	13	22	201	22			0.30	0.4						
McConihe	Grant	1,072	2	30.2		43	13	14	23	21	1.44		0.63	5.5	5	111			1-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	
McCumbers Ranch Moses Lake		2, 182 1, 070	3 2	*****							2.35 1.29		0.90	18.0		5 3		13 28		
Mottinger	Benton	307	13	32.8		53	1	17	241		1.04	- 0.05	0.26	5.5	9	7	5	19	0.	G. H. Mottinger.
Mount Pleasant		1,000	21	38.6	+ 0.8	55 54	10	28 15	21 28	20 30	1.30		0.50	6.7		6		24		
Moxee Newport	Pend Oreille	2,400	3	28.4	7 0.0	42	29	13	20		0.81	- 0.00	0.52	7.0		6		19		Chas. M. Talmadge.
Nighthawk	Okanogan	3,050 211	11				100	20	04	11	9 05	- 1.23	1.12	5.8	20	4	4	23	6.	Steve Nagy. U. S. Weather Bureau.
North Head Northport		1,350	14	29.9	+ 0.8 + 1.9	56 43	10	36 17	19	22	0.76	- 1.33	0.31	10.7				0		W. F. Case.
North Sundale	Klickitat		4	31.6		53	1	11	23 28	24	1.79		0.46		. 9			05		Ruth J. Shepard. Albert Bender.
North Yakima Odessa		1,070 1,540	10				1 12	20	28	26 29	0.84		0.37	9.2		7		25 11	SW.	H. W. Rieke.
Olga	San Juan	50	23	43.2	+ 1.6	55	10	31	20	18	1.46	- 3.36	0.46	0	7	6	11	14	30.	Cecil S. Willis.
Olympia Omak	Thurston	45 850	35	30 8	+ 0.4	43	13	25 15	21 20	23 20	3.61	- 5.81	0.94	6.8		9	11	18 21	8.	C. W. Waters. Saint John Umbrite.
Oroville	do	922	3	32.2		41	2		23		0.47		0.19	5.4	7	8	9	14	S.	M. C. Jackman.
Peola			21	20.6		40	14	7	21	19	0.60	- 0.64	0.33	6.5				17	SW. W.	Samuel Gruell, sr. Peter McClung.
Pomeroy		259	18	39.8	- 5.5 + 1.5	50 57	14 27 7	28	24		1.77	- 5.11	0.67	0			10		50.	U. S. Weather Bureau.
Port Townsend	Jefferson	80	23	42.1	+ 0.9	57		33	91			- 1.18		0				19		Frank Plummer. E. L. Capps.
ProsserPullman	Benton	661 2,550	21	30. 1	- 1.9	53	111	19		27 18°	1. 14	- 1.42	0.46	8.0	5	5 8		12	80.	State Agricultural College.
Queets River	Jefferson	16	2																	C. A. Bullard.
Quiniault Reardan	Chehalis	300 2,510	13	42.8 27.5	- 1.3	55	9	28 8	20 21	23 19	11.56	- 1.02	2.00	12.3			19	20	ne. sw.	A. V. Higley. Chas. Shoemaker.
Republic	Ferry	2,628	13					1	24		1.00			10.0				30		Geo. B. Stocking. James W. Nicol.
Rex Creek	Chelan	1,135 1,825	6 14												1			****	*****	Agent N. P. R. R.
Robertsville	. Klickitat			30.2		46	1	11	24	23	2.02		0.65	16.0			16	10		R. R. Couger.
Rock Lake	. Whitman	1,910	7 21	20 5	-0.0	40	10	10	90	22	1.32		0.36	7.8	. 5		5	14	S0.	H. C. Melcher. Hans Mumm.
Rosalia Russells Ranch	. Yakima	2,425 2,870	4	30.5		49	12	10	20		****									Mrs. Adella Russell.
Seattle	King	248	22		+ 1.2	55	12	28	21	18	2.61		0.64	T.	12	1	11	19	se.	U. S. Weather Bureau. Mrs. H. L. Devin.
Sedro Woolley		1,240	16	30.8	+ 1.1	59 50	7	28 22 11	20 23 21	20 20	2.34		0.76	4.5		2	1	11 28	ne.	C. E. Comstock.
Skagit Power Dam	Whatcom	510	3	37.6		49	6	26	21	14	3.10		0.72	0	13	13	6	12		Skagit Power Co.
Snohomish Snoqualmie Falls	Snohomish King	55 667	19	40.9	+ 0.9 + 2.0	55	12	23 26	211	28	2.64	- 3.30 - 5.54	0.62	0				12	Se.	James Bylling. O. N. Wiswell.
Snoqualmie Pass	do	3,000	4											. 38.0		. 3	1	27		O. N. Wiswell. J. Q. Adams. Geo. M. Snyder. Mrs. Winifred E. Bucking'n
Snyders Ranch South Bend	Okanogan	2,200	18	23.7	- 0.7	41 57	13	27	20 20	32 22	1.17 5.35	- 8.60	0.50	18.0		13	9 6	15		Mrs. Winifred E. Bucking's
Spokane	Spokane	1,943	32	31.2	+ 0.4		14	15	21	17	0.93	- 1.69	0.45	4.8	11	4	5	22	ne.	
State University	King	170	4								2.56		0.57	17.3	16	3 4	12	16	S6. W.	Chas W Gunn
Stokes Ranch Sullivan Lake	Okanogan Pend Oreille	2,670	4								1.17		0.45	6.0	3	4	20	1		University of Washington. Chas. W. Gunn. U. S. Forest Service. H. E. Thompson.
Sumner	Pierce	77	5	38.5		60	11	23	21	27	2.85		0.70	0	19	5	6	20		H. E. Thompson.
Sunnyside Tacoma	Yakima	740 213	18 27	40.0	- 1.2 - 0.3	51 55	11	20 25	21	26 22	1.25 3.00	+ 0.47 - 4.33	0.27	8.7 T.	15	0		26 25	nw.	U. S. Weather Bureau.
Tatoosh Island	Clallam	86	28	45.2	+ 1.3	57	10	38	25	11	6.05	- 8.54	1.16	T.	19	2	11	18	e.	U. S. Weather Bureau.
Tieton Canyon	Yakima Walla Walla	2,313 556	6	28.0		44 54	7	13 15	22 25	19 24	1.17 0.91		0.30	12.0	6	8		18 19	sw.	U. S. Reclamation Service. D. W. Dorrance.
Touchet Ridge	Columbia	2,500	4	30.0		04		10	20	24	2.34		0.93	18.0	10	10	12	9	SW.	Mrs. Maude Bernard.
Trin dad Upper Cle Elum Valley	Douglas	900	9	32.0		47	14	18	20	19	1.10		0.50	11.0	6	6	4	21 24	0.	J. C. Wheeler. Jack Greiser.
Vancouver	Clarke	100	38	38.3	- 0.5	50	131	24	41		3.68	- 2.72	0.89	30.0 T.	18	3 7	7	17	8.	A. A. Quarnberg.
Vashon Island	King	40	24	41.2	- 0.2	55	11	27	21	26	3.67	- 3.32	0.84	0	18	6	4	21	S.	Gertrude McClintock
Wahluke	GrantOkanogan	410	9	33.4		50	1	23	28	22	1.17		0.47	6.5		11	10	17	8.	F. C. Koppen. G. A. Wallace.

Table 1.—Climatological data for December, 1913. District No. 12—Continued.

			years.	Tem	perature	, in	degr	ees Fal	hren	heit.	Pre	cipitation	ı, in in		days,		Sky.		direc-	
Stations.	Counties.	Elevation, feet.	Length of record, years	Mean.	Departure from the no: mal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy 0.01 inch or mo	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind of tion.	Observers.
Washington-Contd.																				
Walla Walla. Washougal (near). Waterville. Wenatchee. Wenatchee (near). White Salmon. Wildur. Wind River. Winthrop. Yacolt. Yale. Oregon.	Walla Walla Skamania Douglas Chelando Klickitat Lincoln Skamania Okanogan Clarke Cowlitz.	2,624 639 1,169 325 2,203	29 13 23 14 2 14 2 2 2	37.7 40.2 28.4 35.1 27.6 35.6	- 4.4 - 1.8 - 0.0 + 0.2	40	1	21 18 21 3 20d 0	21 24 23 20 24 31 29 20	24 22 30 19 17 36 20 <sup>d</sup> 25	0.99 5.20 1.00 1.47 2.60 0.93 6.57 1.19 7.18 6.23	- 1.11 - 2.22 - 0.59 - 0.86	0. 47 0. 37 0. 68 0. 60 1. 35 0. 50 1. 22 1. 28	9.5 14.5 20.8 8.5 38.5 12.7 5.0 4.0	6 10 18 5 10 12 17	3 13 14 2 3 5 5 9	7 7 6 7 6 4	28 14 10 22 22 22 19 16 18	8. e. n. e. e.	U. S. Weather Bureau. F. M. Grout. O. R. Hopewell. A. A. Piper. G. O. A. Pitcher. C. W. J. Reckers. R. J. Reeves. U. S. Forest Service. Methow Trading Co. C. R. Miller. J. A. Williams.
Agency Plains	Crook	2,363		45.0		42	11	2	26†	34	1.44		0.43	14.5	9	15	4	12	ne.	W. S. Williams.
Albany Ashland Astoria Austin Baker Bend Black Butte Blalock Brookings Burns Cascade Locks Casadero Centralpoint Chiloquin Clear Lake Cliff Combs Flat Condon Corvallis Crescent	Linn Jackson Clatsop Grant Baker Crook Lane Gilliam Curry Harney Hood River Clackamas Jackson Klamath Linn Lake Crook Gilliam Benton Klamath	212 1,956 16 4,250 3,466 3,629 1,200 237	31 29 52 2 23 8 12 15 22 23 4	39. 4 38. 2 43. 4 23. 3d 27. 1 29. 2 35. 6 33. 2° 47. 7 26. 5 36. 1 40. 7 37. 4 27. 0 29. 2 30. 2	- 1.9 - 1.2 - 0.5 - 0.3 - 3.0 - 3.3 - 4.0 + 0.9 - 2.4 - 0.2	57 61 54 55 <sup>d</sup> 45 52 46 53 <sup>a</sup> 65 52 50 58 64 57 72 47 57 60	14 10 11† 15 11 8 15 1 1 1 1 1 1 1 1 1 2 1 0 1 4 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	26 20 3 8 8 8 24 15a 34 - 1 22 20 6 12 2 - 6	6 4 23 24 21 19 10† 23 4 25 24 10 16 18 20 18	22 32 16 47d 23 40 19 18a 27 38 14 28 34 40 20 60	3.00 2.49 7.96 1.60 1.10 1.90 4.50 2.04 10.05 4.16 3.21 1.90 3.35 4.67 0.85	- 4.27 - 0.76 - 4.59 - 0.43 + 0.01 - 2.14	1.11 1.20 1.11 0.52 0.28 1.15 0.90 1.27 2.00 0.54 0.87 0.98 0.78 0.90 1.38 0.35	9.0 29.0 29.0 13.50 0 19.2 29.0 11.0	17 10 21 6 10 7 10 5 12 15 7 12 15 7	14 5 10 13 17 15 3 8 14 11 7 5 9 14 8  8 4 10	9 9 2 6 6 6 9 17 8 0 6 11 6 6 13	8 17 13 1 12 8 7 10 n 10 9 9 20 18 15 16 11 10 22 26 3	nw. e. se. se. s. nw. se. se. se. sw. se. nw. se. n. n. n. se. se. se. sw. se. n. n. s. se. n. s. se. n. n. s. s. se. n. s. se. n. s. se. se. se. se. se. se. se. se. se.	F. M. French. Louis Dodge. Irving Club. U. S. Forest Service. U. S. Weather Bureau. Bend Bulletin. William Harris. George W. Long. Dr. C. E. Saunders. J. C. Welcome, jr. Val W. Tomkins. Alf Drill. A. C. Fiero. H. W. Hincks. R. B. Grondahl. John C. Green. J. R. Breese. C. E. Korsechy
Culver Dayville Deadwood Doraville Drain Echo Ella Ella Gardiner Gardiner Glassbuttes	Crook Grant Lane. Columbia. Douglas. Umatilla Morrow Lane. Malheur. Douglas.	2,200 350 600 300 625 830 449 3,710 72 4,200	19 3 11 11 9 9 23	33.2 42.3* 38.1 41.2 31.6 31.2 42.0	- 3.5 + 0.2 - 0.8 + 0.4	49 62 56 <sup>a</sup> 53 59 53 42 62 51	1† 10 11† 10 11† 1 8 25 14	21	24 21† 20† 20 20 23 23 20†	17 21 23 27 31	1. 12 1. 35 7. 83 3. 51 4. 60 1. 00 0. 82 2. 77 0. 17	+ 0.05 - 4.23 - 2.33 - 0.29 - 3.54	0.48 0.89 1.51 0.83 1.06 0.60 0.26 1.06 0.08	3.7 4.5 10.0 0 1.8	16 20 18 4 5 13 3	18 13 11 6 2 6 14 1 17	2 4 8 7 9 5 0 4 4	11 14 12 18 20 20 17 26 10	sw. se. sw. se. nw. e. ne. e. nw.	Oregon Agr. College, W. W. Cryder. O. C. Young. J. Campbell-Martin. Supt. Salmon Hatchery. Joseph Hackenberg. Ira Wimberly. R. B. Stanfield. Carl F. Troedsor. Paul G. Bond. W. R. Gardner. William S. Angus. C. J. Stauffer.
Glenora . Grandview . Grants Pass . Grants Pass . Grass Valley . Gurdane . Headworks . Heppner . Hermiston .	Douglas. Tillamook. Crook Josephine. Sherman Umatilla Clacksmas Morrow Umatilla Jackson	956 2,381 3,500 719 1,950 451 1,595	9 22 25 12 4 11 23 6	26.8 40.4 28.4 30.8 37.8 31.1	- 2.3 + 0.6 - 1.2 - 4.4	63 50 46 77 51* 54 52 57 52	14 11 10 11 14 10 11 11 1	27 25 2 27 2 21 11 26 9 6	5† 4 23 3† 24 20 4 24 26	32 17 29 45 27 26 19 34 26	5.38 7.33 4.81 1.61 0.08 5.76 0.64 1.13		1.70 1.65 1.49 0.65 0.04 1.22 0.19 0.42	T. 3.0 11.0 2.0 8.0 5.5 6.5	13 16 15 5 17 7 7	8 7 14 1 1 14 19 5 4	7 5 2 6 2 12 3 8 4	16 19 15 24 28 5 9 18 23	sw. n. sw. ne. s. e. n.	Carl Olson. Mrs. J. A. Reeher. R. E. Osborn. John B. Paddock. Agent OW. R. & N. Co. Miss Belle Ely. Portland Water Works. Frank Gilliam. C. W. Kellogg. R. H. Parsons.
Hood River No. 3	do  Hood River do do Baker Crook Jackson Wallowa Klamath Union Crook	1,400 300 485 620 850 2,165 1,640 4,400 4,100 2,784 3,171		34.9 34.2 32.0 28.5 25.8	- 1.1 - 3.2 - 0.8 - 0.3 - 1.8 + 0.3	55 52 55 50 47 59 61 48 51 52	1 1 1 1 1 1 6 10 7 10 11	12 21 13 10 11 - 7 20 1 12 11	24 23 24 23† 8† 27 6 23 23 20†	20 15 24 21 34 48 28 33 28 27	2.32 1.97 2.13 1.75 1.06	- 5.67 + 0.30 - 2.18 - 0.81 + 1.30 - 1.21	0. 78 0. 78 0. 61 0. 87 0. 67 0. 21 0. 81 0. 40 1. 50 0. 25	16.5 17.2 15.5 15.0 18.5 15.5 T. 8.0 12.5 7.5	7 13 9 10 7 9 11 2 9 5	3 2 2 4 9 16 5 16 9 18	5 5 9 4 6 2 5 2 12 3	23 24 20 23 16 13 21 13 10 10	e. e. e. ne. sw.	A. C. Allen. Edward W. Birge. C. C. Starring. U. A. Newman. P. L. Smith. F. S. Bubb. Claude Cone. E. Britt. F. F. McCully. Augusta J. Hayden. W. A. Benham. J. W. Brown.
Lakeview McMinnville Marshfield Meadowbrook Ranch Medford Merrill Metolius Miramonte Farm Mount Angel Mustek	Lake. Yamhill. Coos. Hood River. Jackson. Klamath. Crook. Clackamas. Marion. Hood River. Douglas.	4,950 182 34 850 1,425 4,070 2,525 195 485 1,450 5,000	30 26 12 1 3 7 3 25 27 2	39. 6 44. 8 35. 4° 38. 4 29. 8 27. 7 39. 2 40. 7	+ 0.2 - 0.9 - 1.0 - 0.7	51 59 58 52° 63 53 53 57 58	7† 11 8† 1 10† 13 12† 11 13 4†	9 26 28 16a 22 11 4 25 28	27 9 2† 23 16 23 24 21 20†	33 19 28 17* 31 38 33 21 17	1. 85 2. 57 8. 07 2. 88 1. 91 1. 81 1. 24 3. 51 3. 17	- 0.35 - 5.17 - 2.74 - 4.20	0, 68 0, 64 2, 12 0, 98 0, 64 0, 90 1, 00 0, 90 0, 75	16.6 T. 0 24.0 T. 4.0 0	8 13 23 8 15 5 3 17 15	10 5 7 1 6 13 15 5 4	6 1 3 15 8 2 0 6 4	15 25 21 15 17 16 16 20 23	s. sw. sw. ne. se. sw. n. sw.	J. W. Brown. C. C. Gott. M. E. Pettit. U. S. Weather Bureau. John W. Palmer. U. S. Weather Bureau. U. S. Reclamation Service. John A. Hoffman. G. Muecke. Anselm Weissenborn. Isaac Beal. Alex. Lundberg.
Newport Odell Ortley Paisley (near) Parkdale Pendleton Peninsula	Lincoln	1,000 1,600 4,209 1,650 1,070 2,640	26 1 2 10 3 24	30. 2 27. 9 30. 9 32. 6	- 3.0 - 4.0	53 49 50 50 55	30† 1 10 1 7	33 14 10 14 8	23 9 23 24	20 36 24 30	7. 91 2. 94 0. 80 1. 75 1. 06	- 2.61 - 0.44	1. 90 0. 63 0. 74 0. 35 0. 20	23. 0 2. 0 15. 5 7. 2	10 2 10 10 10	8 13 8 1	5 8 3 11	21 9 20 19	e. sw. w.	William Mathews. W. H. Chipping. L. D. Firebaugh. C. M. Sain. S. G. Babson. E. F. Averill. M. M. Davenport.
Pilot Rock Portland Port Orford Powell Butte Prairie City Prineville	Umatilla	1,817 57 80 3,240 3,425 2,864 2,800 1,350	5 43 8 2 17 7 12	40. 7 46. 1 28. 3 30. 6 29. 8 37. 8	- 0.6 - 6.0	55h 55 61 53 60 56 62 43	13 13 12 11 10 10 9	7h 30 31 2 0 - 1 21 9	27 19 3† 23 20 23 4† 23	35h 14 25 36 37 43 39 26	1. 25 3. 48 9. 18 1. 16 0. 79 0. 30 4. 93 1. 58	- 3.86 - 0.70	0. 25 1. 07 1. 40 0. 45 0. 26 0. 20 1. 47 0. 53	12.5 T. 0 4.5 7.5 3.0 13.0 23.5	7 17 18 5 9 2 14 8	2h 6 9 11 12 12 6	3h 6 7 10 8	19 15 10 11	nw. e. s. w. n.	John P. McManus. U. S. Weather Bureau. John D. Loucks. Earl Saunders. A. M. F. Kirchheiner. Mrs. T. M. Baldwin. Charles A. Lower. Iva B. Collins.

Table 1.—Climatological data for December, 1913. District No. 12—Continued.

			years.	Temp	erature	, in	degre	es Fal	renl	heit.	Prec	ipitation	, in in	ches.	days, re.		Sky		direc-	
Stations.	Counties.	Elevation, feet	Length of record, years	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of part- ly cloudy days.	Number of cloudy days.	Prevailing wind clon.	Observers.
Oregon-Continued.																				
ange	Grant	3,500	5	28.0		53	11	4	21†	33	1.10		0.60	6.0	4	16	7	8	n.	Mrs. Emma Arbuckle.
edmond	Crook	2,990	2	27.5		51	11†	4	23	33	1, 22		0.50	12.2	5	15	6	10	nw.	T. G. Stevens.
ichland	Baker	2,350	12	28.8	+ 0.7	52	11	8	21†	32	1.50		0.70	11.0	5	14	5	12	θ.	L. G. Morgan.
iddle	Douglas	715		42.1		65	12	29	10	30	2.42		0.81	0	13	4	4	23	8.	P. A. Wilson.
io Hermoso	Crook	2,110	2		******															Carl T. Hubbard.
iverside	Malheur	3, 200	14	22.7	- 4.1	48	31	- 10	24	38		+ 1.78	1.20	30.0	7 2	15	3	13	0.	Mrs. Leah Fairman.
obbville	Crook	4,000	****	28.3		53	4	5	19†	45	0.86		0.50	0.4	2	25	4	2	8.	Loren B. Robb.
seburg	Douglas	510	35	41.5	- 0.4	59	11	30	23	22	2.36	- 3.56	0.85	0	13	0	20	11	8.	U. S. Weather Bureau.
lem	Marion	120	23	38.3	- 3.6	51	11	30	20†	10	3.39	- 2.56	0.77	0	17	0	0	31	nw.	Henry A. Hoffman.
neca	Grant	4,800	2		******														******	E. J. Southworth.
lver Lake	Lake	4,700	16	29.4	- 0.4	58	13	4	9	39	1.32	+ 0.20	0.90	1.5	4	13	16	2	SW.	G. W. Marvin.
skiyou	Jackson	4, 115	5	34. 4	******	51	10	20	18	17	7.27		1.95	37.5	14	12	6	13	W.	U. S. Weather Bureau.
parta	Baker	4, 150	22		- 0.1	48	13	8	21	30	3.20	- 0.46	1.00	36.0	9	13	11	7	W.	J. A. Wright.
afford	Clackamas	400	17		- 0.4	62	13	26	9	25	4.01	- 3.24	1.03	0	17			****	ne.	John P. Gage.
ablerock	Jackson	1,215	****	38.4	******	68	12	26 23 21 20	15†	38	2.57		0.88		12	3	8	20	nw.	Mrs. J. C. Pendleton.
alent	do	1,800	00	38.0	*******	63	10	21	16	26	1.95		1. 01	0.5	8	- 6	1	24	nw.	T. F. Smith.
he Dalles	Wasco	112 20	39		- 1.5	55	1	20	24†	20	1.72	- 1.14	0.70	17. 2	8	5	3	23	е.	Judd S. Fish.
llamook	Tillamook Lincoln	75	00	44.7	1.0	62 58	13	28 30	4	30 24	9.96	1 00	1.91	0	20 14	10	9	12	θ.	Will Spalding. C. B. Crosno.
matilia	Umatilla	340	23 25		- 1.9 - 2.4	50	1	12	2† 26	22	9.11	- 1.26 - 0.19	1,50	0.7		12	11	8 24	0.	Mrs. H. T. Duncan.
nion	Union	2,787	20			53	11	14	3	26	0. 46		0. 20	3.5	8	6	1 10	8	0. 86.	Robert Withycombe.
	Malheur	2, 242	21		- 3.5	47	11	2	26	32		+ 0.73	0. 67	17.0	7	17	2	12	ne.	H. P. Osborne.
	Harney	3,506	2		- 0.0	21	TI	4	20	32	1. 94	+ 0.13	0.07	14.0		14	4	12	He.	George Howe.
anda	Lane.	1,100	2	40.8	******	65	12	29	4	27	5.39	*******	1.34	T.	12	16	2	13	8.	W. H. Pendell.
aldo	Josephine	1,900	3	10.0		400	27	250	16	170	2, 10		0, 65	3.5	. 9	10	80			W. H. Wittrock.
aldo Lake	Lane	5, 494	0	30.9		46	9	12	23	23	3.30		1.40	29.0	5	18	2	11	SW.	J. S. Gold.
allace Orchard	Polk.	170	4	40.5	******	68	25	26	20	31	3.76		0.83	20.0	16	1	21	9	OW.	Charles A. Park.
allowa	Wallowa	2,935	10		- 2.1	45	31	- 2	24	29		- 0.25	0.45	11.0	6	12	12	7	0.	L. Couch.
amic	Wasco	1,500	12	29.4	Are A	48	14	5	27	24	2.09	0.20	0.53	21.0	5	2	5	24	0.	A. J. Swift.
armspring	Crook	1.500	11		- 6.4	48	15	5	26	37		- 0.29	0, 60	12.0	8	3	15	13	W.	George W. Robbins.
asco	Sherman	1, 263	**	34.2	0. 1	49	1	10	23	24	1.59	0.20	0.41	14.0	8	7	7	17	6.	J. R. Howell.
eston	Umatilla	1,800	21		- 2.8	55	11	11	20†	34	1.08	- 1.53	0. 29	8.7	10	5	2	24	8.	M. A. Baker.
hitaker	Crook	4, 250		34.2	are to	00	2.4	- 5	26	O.S.	0.71	2.00	0.52	8.0	4	12	11	8	se.	Frank Percivall.
illiams	Josephine	1.368	21	37.5	- 2,1	65	12	23	15	35		- 0.44	2.04	1.0	15	4	4	23	W.	Francis J. Le Roy.
onna	Klamath	4, 146	6	30.0	Mrs. di	55	10	3	9	50	3, 29	0. 22	1.10	17.4	13	-2	16	13	8.	Ward Rueck.

\*, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

Table 2.—Daily precipitation for December, 1913. District No. 12, Columbia Valley.

Stations.	Watershed.			1	_	-	1	1		-		1	f		1	,		onth.	- 2								, French	100	1				-
	-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Potel
Montana.	,							-																									1
naconda	Missoula	T.													T.				*		,		*	. 05		*	. 05					.20	
elton (near) utte	Flathead Missoula																			T.			. 00			. 04						. 15 T.	
olumbia Falls	Flathead																					. 07	. 06		. 02	. 18	. 03					. 32	0.
omoayton	Bitter Root. Flathead																		****				. 03	.04	.01	.33			****		****		0.
issoula	Misscula												****																	****			
ast Anaconda	Flathead Kootenai																	****	*	. 10	****	.06	. 03	.04 T.	T.	. 03	T.		T.	1111	T.	.21	
amilton	Bitter Root.														T.				т.				. 04				T.				T.	T.	
at Creekaugan	Missoula														Т.				T.	. 15			.03	.04		.14	. 04				T.	T.	0
eron	Columbia																																
alispell													. 02		T.							. 01 T.	. 04 T.		. 03 T.				.02		.01	. 24	
bby er Lodge															1.														.00				
vando	do				T.									T.	T	T.							.06			. 03					. 04	.09 T.	
nilipsburg	Columbia													1111	1.	****						****	. 02			. 12	T.	T.	T.			.04	
easant Valley	Kootenai																					T.	. 04		T.	. 16						. 40	
lson	Flatheaddo	01																					T.	.10					.01		. 08	****	0
ltese	Missoula											. 04												. 20		. 18	. 10		. 10			. 52	2 1
evensville nompson Falls	Bitter Root.														T.									.06							. 01	.21	0
out Creek	Columbia													0000										1.21		. 48						.39	3 2
etor	Bitter Root.	T.																						. 06						T.		T.	
Wyoming.						1																					-						
ton	Snake																		.08	. 20			. 30									. 10	) (
chler River	do																		T.	. 11				. 15	90	04	00	04			10	.30	0 0
dford	do	. 07														.00			. 09	. 19			. 10	. 20	. 40	.32	T.	. 03			. 12		
ran	do																		. 02					. 10	. 05								
ake River	do																							. 30		. 28					****	. 61	1
Nevada.		_																		00		m				00						700	
ld Creekk Creek	Snake	T.																T.		. 62		T.	. 42			. 08	. 51	71	T.	.26		. 38	8 1
Jacinto	do																	***		. 10											4.00	.08	
Utah.																							- 1										
ndrod	Raft											. 01							. 19	T.			. 09			. 11	. 02					. 15	0
Idaho.																																	
bion	Snake																																
mo	do																		.12													.10	
nerican Falls		****	****	****		****	****	****		****	****	****	****		****	****		.13	. 41	. 10		****	. 50	.21	****	.42	.33					1.07	7 3
ery	St. Joe											T.							T.					.23		T.	.02		.06			. 15	
ckfoot	Blackfoot																		. 16	.15		****	. 24	17		. 27			****	****	.20		
gus Creek	Pavette																	.11	. 34				. 16	.07		.72			T.		.12	.58	8 3
ise	Boiso			1								T.			T.			. 35	. 49					10		. 30	.01			.04	.15	. 33	
ise King nners Ferry	Kootenai																	****	****		****		. 04	. 16	****		.20			****		. 60	3 6
ulder Mine	Boise																	. 08	.27				. 41	. 26		. 87	.27		.01		. 24	1.11	1 :
hl	Snake																						.10			.30			60		.20	. 25	
rkedwell	U. Columbia Boise	. 60		****	****	****	****	****	****	****				****	T.		****	.04	.24		****	****	. 43	.10	****	.11	.14		.00		.34	.31	
dwell Exp. Sta	do		1																														
nbridge	Weiser		****															.05	.10	T		****	. 40	03	. 45	. 10	.50	T	T	T	. 30	1.20	1
esterfield	Port Neuf																		T.	. 20			T.			T.	T.				.20	.29	1
rks Fork	Salmon Port Neuf PendOreille.	. 03														. 03			••••	• • • •					. 31				- 05	****		. 39	1
ur d'Alene tonwood	Boise	****		****	****			****						****	****			. 10	. 42				.57	. 18	****	.81	. 22			****	.36	1.39	,
meil	Weiser																	. 06	.04		T.	T.	- 200	- 15		. 40	. 223	1			. 24	.58	8
desac	Clearwater		****				****						****			****	****	****	.01	****	****	.06	. 11	. 38	****	. 24	. 20	.10	.04	****		.03	3
ggs	Snake		****													T.			.07	. 12			T.	. 04		T.	T.	. 04				. 55	1
mett	Pavette																				****		.45		****	****		****		****		.30	
net	Snake Bear																			.14			. 10	. 24						****		.84	4
nns Ferry	Snake Big Wood																		. 40				. 25			. 15					.96	. 25	
ding	Big Wood Bear	****			****			****	****	****			****	****	***					10		****	.05	****		.95	.10			****	.10	40	1.
ce	Snake			****	****						****					****		T.	.30				.41			.01					. 13		. 1
mes Pass	Snake Boise														T.							. 25	.32	T.	. 75	. 39	T			.27	.97 T.	.78	1
ley	Snake Big Wood Snake.	****	****	****			****	****		****	****	****	****	****	.02	****	****	. 10	.40	T.	****		.20	.11		. 28	.02				.06	1.20	1
ister	Snake										3							T.	.08				.04			T.	.08				.06	.26	1
spring	Bruneau Boise					****												10	. 48	T.	****	****	.04	15		T.	. 18	****		****	. 30	. 68	1
no City	Snake			****	****		****	****	****	****	****		****	****	****	****	****	. 12	. 13	1.			. 39	.21		.17	. 05	****			.22	. 15	1
ian Cove	Snakedo																	T.	. 40				.05			.07	.23				.05	. 75	
ian Valley	Weiser	773								****				• • • • •		••••			.07	10	••••	••••	.26	.20	10	. 32	-46				.32	.56	1
inllogg []	C. d'Alene	. 05							10000										T.	. 10				. 13	.06		. 13		.06				1
gore	L.River Reg																	.04	****	T.			. 45	. 25	***	.02	T.	.03	****		. 25	1 20	1
kham	Payette Clearwater														T.			. 10	. 24				. 28	. 40	.50	. 44	. 25		. 10			1.20	. 1
ceview	PendOreille.																								.08	. 05		.08	.09			.08	8 (
ndore	Snake	- 10	8						1						. 06			. 08	. 09				. 28	. 24	.01	. 50				T.	. 16	1.43	3 2
	Malmon																	****	****				****	****			****					. 02	3 .
doreviston							-					T		.01				_ (Mc)	1961		400		1963	210			. 13				T		400

# TABLE 2.—Daily precipitation for December, 1913. District No. 12—Continued.

Stations.	Watershed.														]	Day	of m	ontn.															
Stations.	watersned,	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	makel
iko-Continued.																																	
kay	L.River Reg																															. 25	5 0
ad	Malad																																
idian	Boise Weiser	****		****	****		****				****	****	****		T.			. 15	. 44	T.	****	70	.95	. 05		. 26	. 14			T.	.32	. 22	2 2
dle Fork	Clearwater	****	****	***	****		****	****	****	****	****		****	****	.10	****		****	. 15	****	****	T.	.25	32	****	. 30	. 38			****	. 18	. 10	1 2
ner	Snake																		. 46	. 12			. 12			. 12					.30		
ore	L.River Reg	· · · ·			****	****			****																								
ntainhome	Palouse	T.		****	****	****	****	****			****	.01	****			****	****	05	49		****											. 05	
rtaugh II	do	. 30		****		****						****	****	****				.00	. 15	.30	****	****	.00	12	****	23	26					. 64	
sselshell	Clearwater	.11																	.06				. 09	. 27	.02	. 16	. 20					. 19	9 1
w Meadows	Salmon	. 02			****				****									.08					21	12	94	18		1			0.8	1.07	1 :
	Clearwater Snake		****		****	****	****				****		****	. 20	****		****		. 35	35	****	****	.51	. 14	****	. 15	****	***			****	. 16	2
Iara Bar	Clearwater																			.00	****		****		****	****						. 10	
nno	do	71	1	1		1	1	1	1			rgs.							0.3	- 1		- 1	. 22	. 38		. 29	. 14		07				
is	Bear Payette											· · · ·			700	****	.05			****							.10		03			. 11	
rette	Salmon	****	****				****		****			T.	****	****	T.	****	****	.00	. 00	****	T.	****	25	.08		. 86	. 02		Т.	T.	.50	. 51	2 3
e []	Salmon Boise														T.				. 62	. 23			. 48	. 87	. 76	. 31				- 17	. 25		
asant Valley	Port Neuf																	.06	. 63				.52	. 10		.06	. 19				. 10	. 35	5
atello	Snake	***	****	T.								****		****			T.	T.	.09	.05	T.		. 05	.01	T.	.03	.06				.07		
thill	Kootenai	****								****	****	.01	****					. 64							. 11	. 11					. 10	. 24	3
est River Ex-			1	1			1	1	1															****		****		***		1		. 40	1
eriment Station:	n		1				1	1	1												1												
No. 1	PendOreille.	****	****					T.	****					****	.04		****		T.				.05	. 02		****	T.		. 11			. 76	
No. 3	PendOreilledo Payette				****			T							.04			****	1.		****		.04	.02			T.		10	Т.		.71	
creek	Payette																	.02	.10				.38	. 12		. 78	. 18	3			. 28	1.55	
CIESTIAKE	D0190																	. UO	. 44	T.			. 40	. 14		. 46	. 21				.32	1.14	4
nfielderson	Big Wood Snake	****			****	****	****	****				****			****	****		T.	. 35	T.	****											. 69	
eworth	do	****	****			1	****			****	****	****	****	****	****	****	****	T	.02	****	****	****	13			07	06					. 68	
ert	do				. 02														. 18	.06			.32			. 28	. 18	3			. 12		
Michaels Priory.	Clearwater	. 03					****								T.			. 04	.09				. 11	. 26		T.	. 13		03	3		. 07	7
nonipoint	Pend Oreille						****				****			****	****	****	****	T.					. 10	.06	T.		T.					.06	5
p Hill	Boise	****				****					****			****	****	****	****	10	.55		****		81	18		1 41	30				30	1.85	5
zhone	Rig Wood															1		T	21	0.4			. 14		T.	.10	. 20	)			T.	. 62	2
er City	Owyhee			1			1			1								12	24					52	00	40	126	2		1	0.0	20	Q
ier Creek	Big Wood Snake					****									. 07		****	.08	. 24	T.			. 25	.37	****		****				1.07	2.04	4
no Hill	Roise		1	3		1	1	1	1	1	2							10	39				20	18		47	14				36	48	8
ar []	Snakedo Payette	. 03									****				****			. 10	.02	. 13	****	****	. 04	. 39	****	. 26	. 58	3			.10	. 26	6
nyside	do				T.																		. 08								. 60		
ood Mountain	Payette												****		****		****	. 06	. 15				.30	.21		.52	. 42	2			. 32	. 83	3
er Lost River	Snake L. River Reg	****				****	****	****	****				****				****	.01	. 41	.05			. 25	****		. 10	T.	***			. 20	. 75	0
non	L. River Reg Snake																		. 05			****	.02		****	****					.10		
ser	Weiser		. dere															. 10	. 03	T	T	T.	. 35	.20	T.	1.10	. 25	.1	0 T.	. 0	. 05	. 60	0
adell	Big Wood									1									. 35				. 54			.56	. 17	7			. 16	. 48	8
itebird	Bear Salmon								1		****	****	****	T	****	****	****	****	.28	. 05			. 15	10		****	- 12				. 10	. 25	5
Washington.								-		1				-						****	****	****	.00	, 20				1	1	1			
	Coast					.21	. 23	.33			. 02	. 17	.01	. 02	. 72	. 07	. 06	. 85	. 05			. 53	. 29	. 03	. 59	.72			8			1. 15	
cortes	Puget Sound							. 33							. 10			. 36								. 55							
tone	Snake Puget Sound	****			****	30		50				20		10	40	****	. 05	. 60	10	****	****		T.	, 40		T.	· m		ó		T.	. 20	0
ingham, near	do	. 03	SI . U2	. 03	. 02	. 10		. 35			. 02			. 04	. 13	- 02		- 29	. 10		.04	.02	1.		****	22	.07	7 .0	6			. 14	
ne	do	. 02				. 22	. 02	1 . 22				. 02		. 04	. 07	. 04		. 40					. 07			. 15	. 07	7 .5	0 .0	1	.1 .03	. 21	1
wett	Wenatchee.							. 10			. 08							.30	.20			. 10	. 30		.20	.20		8	0		30	1.00	0
mertonwster	Puget Sound Columbia	****		T		00			. 22		****	. 28		****		.20		. 00	1 Via	****			. 16				T.	7 .3	8 7			.38	
kley	Puget Sound					. 06		1 . 21				. 05	1		1.10	.00		.39	. 18	****	****	. 12	****	.01	.09	35	. 13	3 2	8 T.	5	. 20	. 88	8
nping Lake	Yakima						. 25				.24	. 10		. 15	T.		T.	. 16	. 14			. 20	.08	. 15		. 20		5	5 T.	T.	1 . 85	. 88	5
	Coast					. 12	T.	. 10	. 03			. 10	.02	T.	. 18			. 60			. 03	T.	T. 1		. 30	- 47	. 00	2 . 2	3 . 10	O T.	. 11	. 97	7
rbrook	Puget Sound Yakima	****				. 16		- 4		****	. 03	.03		****	. 18			.51					****			. 15		2	2 .10	0	7 30	.35	0
X	Palouse																		. 16					. 21				1	2 .1	i .0	. 1.	35	5
ille	Columbia											T.						.07		****		****	. 10	****					1	6		.51	1
conully	Okanogan																	. 03	.10			T.	. 10		. 05	.04	T				20	.76	0
ee Cityiche	Columbia Yakima	****			****						****	****						. 10	. 15			. 18		. 16				2	20	2	0 .40		9
rington	Puget Sound				****						****		****	****				****			****	. 20	. 16						)8			· La	4
enport	Puget Sound Columbiado																	*			****		*	*		*	*		*		. *	*	
ton	do	. 01			****													. 10	.07				.22	10	1	12	. 06	R	0	6	06	. 40	10
TOTAL	ODUKBING			.i.c.											1	1	Acres.		. 125				- (10)			12		1	. 2	0		. 76	6
glas Lake	Puget Sound	***	1	****		. 10		26		***	. 02	. 23	.06	05	. 26			40	14	****	****		.21		.08	. 66	. 08	9 .6	.0	0	2 . 20	. 50	0
den	Wenatchee					T.		T.	1					T.	T.		T.	. 05	.14	****			. 15	.01	.11	. 17			9 T	.0	3 .06	.54	4
annuall	ruget bound						1 . OU			Inna.	1	. (1)			11.20	1		11. 20					1. 187		291	1		5	KJ		91	11. U	JU.
nsburg	Yakima	****															, 03						. 10	.09		T.	T.	. 1	8		18	. 30	0
pia	Columbia	****						01	****		10	40	10		1 00	20	1 00	****		****	****		1 00	****	****	****		0				.5	-
Simcoe	Yakima																								1		1	1				1	
me	Columbia																	. 05	. 05	****	****								1	8		.8	1
Lake	Columbia Puget Sound						1.82	. 96																				8	6				
lendale	Columbia	****			****			1			****	****		04		1	00	****	****	****	****	*	.20		90	02			0 . 1	0	0 20	1 4	in Oi
nite Falls	Yakima Columbia Puget Sound	.06				. 16	.10	. 28			. 05	. 10		. 01	.01		. 02	.51	.05		****		. 00		. 20	13	6	0 .0	6	1.2	01	6	8
ford	Columbia																	. 03					. 35			. 02	2	1	6		20		
ion	do																	. 20						. 40	. 10	. 15	. 0	8	1	5		. 4	0
e Mountain newick	0D	••••	****	****	****	****		7		****							.30	·	****				****	. 65							* ***	. 8	10
or and the same of the same of	do	••••		****	****	****		1.		****	****		****	****				1.	.00		****	.01	. 02		T.	. 02	I'.				· I.	1 1	3
newick																																	

TABLE 2.—Daily precipitation for December, 1913. District No. 12—Continued.

Stations.	Watershed.		1									1	4					onth	-					,						×			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Potel
ashington—Contd.																					SITTING TO SERVICE												
osmos	Columbia	. 05					. 08						. 17	.09		.30	-11						. 10			-			08	06	.08	. 68	1.
Center	do				.01	.01	. 26				. 15	T.	. 03	. 01	. 24		. 20	. 37				. 44	. 22		. 35	. 34	.01	. 15		.18	1.10	. 25	
Crosse	Palouse Yakimado				****				m							·	· · · · ·	. 20	. 04				.02	. 33		. 16			. 07		. 04	. 34	1.
ake Clealum	do		****	••••	••••		****	. 12	1.	••••		02	1.		01	T.	T.	05		****			. 13	10	T.	05	.07	. 28	.10		.08		
tro Koechelije.	00	- 2022						- 40				1.3			262	1.58		.11	. 05				. 11	.06		.10	.10	. 43	.16		.13		
keside	Columbia do Kettle Coast										****				****	****	****	.05	. 15			.08	. 09	T.		.07			.02	****	. 21	. 62	1.
aurel	Kettle	****	****	****	.01	****	****	.08		****	****	. 02	****		.12	T.	.03	.10	.05		****	.08	. 35	****	* 47	.40 T.		. 28	.10	.02	.40	1.00	0.
one Tree	Coast	.06					. 21	. 63			.04	.09	. 01	.02	. 70	, 01		. 76	. 06			.08	. 44	. 03	. 37	. 70	. 18	. 53	.01	T.	. 48	.80	
nomires springs	PHERE SOURCE											- 117	. 111		. 30	- 101	T.		. 05			.34	. 20		T.	.30 T.	. 30	. 50			T.		
ost Creek	Columbia Puget Sound	• • • •	****	••••		.10	••••	• • • • •	• • • •					.05	.06	• • • •		. 00					Т.	T.	27	T.	.03	05		T.	. 63	. 50	0
cConihe	Columbia					. 03												. 12				. 34				T.		. 32			. 63		1
eCumbers Ranch.	do	• • • •					• • • •					. 35																. 25	. 05		. 20	, 90	2
oses Lakeottinger	dodo Coast		• • • •	.03		• • • •	• • • •										.01	10	T			. 34	16	.00		T.	T.	08		.11	. 63		1
t. Pleasant	Coast							. 15							. 16			. 25	T.				T.			. 08					. 16	.50	
oxee	Yakima																	T.	T.	T.	T.	T.	. 25	. 02	. 01							.20	0
ewportorth Head	Coast Orelle	08	****			06	26				06	15		26	39	.03	53	40	03			40	45	08	. 10	. 04	00	81	. 12	10	.60	. 52	0
orthport	Columbia						T.				.00	T.		. 20	. 00	T.		.03	. 00		T.	.04	. 30	.00	. 01	.00	. 04	. 21		. 40	.17	.31	0
orth Sundale	do				****												. 10	. 08					. 40		. 24	. 08	. 25	. 03			. 15	. 46	1
orth Yakima	Pend Oreille Coast Columbia yakima Columbia			T.	T.								****					05	I.	T.	T.	I.	. 10	. 02	T.	. 10	. 01	. 10	. 02		.12 T.	.37	0
K0																										. 46	10000	0000			0 - 0 -	. 14	1
lympia	do	. 05		· · · · ·	1000	.00		. 27				. 10	T.		. 29		185	. 30				m	. 22		. 10	. 55	. 05	. 53	T.		. 20	.94	3
makroville	Okanogan			T.	T.												T.		7			T.	no.		260	di.	T.	1.12	T.	.00		1. 10	1
ola	Snake											T.						. 12	. 01				. 30	. 03		. 02	2				.01	.11	1
omeroy	Coast																	. 15	. 20				. 40	. 50							T.	. 15	j
ort Crescent	Puget Sound				. 03	. 02	. 09	. 03			. 01	. 02		. 05	. 14		. 09	.09	.00		****	.07	.00		. 05	. 13		. 02	5	1	40	. 35	
rosser	Puget Sound Yakima				T.	****		. 12							. 02			T.	. 86				.02	. 20	T.	*	30	16	3		*	. 49	
ullman	Palouse																	. 20						. 40								. 33	
ueets River	Coas' Palouse					10		70					00	30	0 00			00									1 70					1 00	
uiniaulteardan	Spokane	.00		****		.12		. 10	.01	. 02	.04	. 00	.08	. 10	2.00	. 20	.00	. 02	. 01			****	. 10	.08	. 12		1. 11	. 80	25	T	1. 00	1.90	H
epublic	Spokane Kettle																				. 23								.14	.18	.30	.12	li
	Columbia															:																	
itzville	do	****	****	****		05			****		30					****		15	****		***	10	17		35	****	0				85	40	10
ock Lake	ColumbiadoPalouse												. 08							.06				. 12						. 10		. 96	1
osaliaussells Ranch	do																	. 16					. 02	. 28	. 02	. 10	. 08	T.	. 02	2		.08	8 0
usseus runicu	Yakima Puget Sound					04	15					96		T	.07		00	55				.08	T	T		.14		4	T		08	48	0
edro Woolley	do	. 10	)			. 03		. 40							. 03			. 58	. 05							.28	.00	.0				.76	
kagit Power Dam.	Columbia																	. 10					. 20			. 10		. 13	3		. 12	.38	1
kagit Power Dam.	Puget Sound	. 17				10		90				10	. 03	. 02	. 42	. 10		62	09					91		12	. 20	30	.23	3	.08		
nohomish noqualmie Falls	do	T.	T.	T.	T.	T.		18				. 16		. 02	30	.10	)	. 19	.06	T.			T.			. 03	. 01	1 .29	1.14	1	.00	.56	
noqualmie Pass												1						1															
nyders Ranch outh Bend	Columbia	- 0	4			04		. 08				95	04	00	7	9		T.	10			. 05	. 43		. 20			T.	3 .11		21	1, 01	
pokane	Spokane				T.														.03		T.	.02	. 03	. 12		. OF	.0	4 . 0	1 .11	1	.02	. 43	3 (
pokanetate University	Puget Sound					. 02		. 12	. 01			. 30	)	. 01	1 . 0	3	. 01	. 57	. 12	. 01							3 .0		30	0		. 43	
tokes Ranch	Columbia Pend Oreille.							. 01										. 10			T.	.06		T.				3			. 44	. 45	
umner	Puget Sound	.0	4			. 01	.0	3 .30					. 10	0	1 .1	3		. 32	.00	.06		. 08	. 02		. 05	. 47	7 . 14	4 . 2	5 . 00	5 . 0		. 70	) .
unnyside	Yakima																						. 25	. 27		. 20	6 .00				. 08	. 22	2
acomaatoosh Island	Yakima Puget Sound Coast	16	0		21	.08	. 20	0 .00			T.	. 08	T.	.05	2 .0	0	. 13	2 .41				- 11	T.	T.		.36		0 .30	8	Т.	. 10		3
ieton Canyon	Yakima					. 00					. 04	. 44	1					T.		T.	T.	.25		. 18			T.		. 13	3 . 1		.30	
ouchet	Columbia																	. 10	. 00	5			. 22	. 11		. 28	8		00	5	T.	. 10	) (
ouchet Ridge	do											Т.						. 10	1.13				. 12	. 38		. 10	0 .1	0 2			. 10		
ancouver	do	.0	5			. 05		. 17	7			. 14	1	.0	4 .0	0	7	. 31	.08	5		. 23	.30	.06	. 14	6	2 .0	5 .0	5		. 40		3
ashon Island	Puget Sound					. 07		22	. 02			. 21	. 01		0	.0	1	84	. 00	2	1		.14	. 02		. 72	2 . 0	4 . 4	1 .13	2 .0	. 02	. 62	2 :
VahlukeVallace	Columbia		4			4				1					1			1 1 2	1	4		01	T.	. 25	.20	.00	8			0	19	. 47	-
Valla Walla	Okanogan Columbia			T						1		T					. 10	. 14	.00	3		. 03	. 19	.08	. 01	2	7			. 0	. 02	. 14	6 1
Vashougal (near)	do	. 10	0						. 13			. 10	)		1	5		80	.20	0						. 20	* 0	*		*		3.50	1
Vaterville	do	000																						.01	T	T.						. 47	-
Venatchee	do									1								0	. 20	)			. 04	. 04	. 17	. 17	7	1	7	1	1 . 17	.37	7
Venatchee (near) Vhite Salmon	do					. 02	2	25	2 . 03		. 0	.0	9		0	8		00	0 . 01	1 7		. 12	. 15	. 03	. 51	. 18	8	. 1	0 . 0	8 .0	. 19	. 68	8 5
VilburVind River	do																	. 12	m	.80	700	. 02 T.	. 04	.57		T.	*	. 1	5	9 T.		. 60	
Vinthron	do						1	1 10	0				. 190		0		T	00	1	1 . 80	1.	02	. 06	.07	.0	0	4 T		. 8	9 T	. 20	1.35	
Vinthrop	do	.1	1					3	7			. 2	3		6	8		71				. 02 1, 00 . 19	. 85		.20	.78	8	7	6		. 25	1. 22	2 '
ale,	do	.2	6			. 02		2	8			5	5	. 0	4 .5	7		90				. 19	. 10	. 19	. 13	.3	4 . 4	5 .4	5 . 13	2	. 29	1.28	3
Oregon.				1					-		-	1		-				1		1	-							1				-	1
	1					1			1						1							1						-					1
gency Plains	Deschutes			. T.	.0	1					0	1		0	1			. 0				. T.	. 13		T.	. 3	3	0	4	. T.	. 43	.40	
Ibany	Willamette.							. 1	.01			. 0	2	. 0				1 .1	.0	8		. 41	. 41	. 01	. 16	. 6	0 .1	3 .0	1	T.	. 07	1.11	
na Rivershland	SE. drainage Rogue	***									T.	1.0	9	1	ō			. 15	3			T.	. 15	. 11	. 06	1 . 1	7			.1 . 10	33	1.20	0
storia	Columbia	1.0	91			. 24	21 . 1	11 . 5	51			. 1	6	0	2  . 6	71.3	9 . 0	1 . 90	1 . 1	9 T.		20	.00	- 08	. 32	1. 1.	1 . 0	2 . 3	2 . 0	3	. 37	1. 02	2
ustin	John Day																	- 1	2		m	. 05	.36	T.			. 4	0		. 0	. 13	. 52	2
BakerBear Creek	Snake Deschutes	T.																0	3 . 0.	2 T.	T.	. 05	27	T.	1.14	. 1.	0 0	7 9	2 .0.	- 0	1 30	1 21	1
Bear Valley	SE, drainage								1					1				34	T.			. 10	.30	)	. 18	3 .2	8	0	8		. 33	3 .30	0
Beech Creek	John Day Willamette																	. 1	5			10	.35	.30	.2				2	0	. 45	.20	)
Bellfountain	Willamette.						. 0	0 .1	5	.0	2	. 1.	0	.0	0. 8	1 .0	1	5					.28	. 03	. 51	7 .4	4 .0	.0	8	1	1. 13	. 91	4
BendBig Basin	John Day												.0.				-	1.				. 08	****	. 10	.0								
Black Butte	John Day Willamette Columbia												3	5				7	0 . 1	5		25		. 15	. 7	51 . 30	0			0	.54	. 40	0
Blalock	Columbia Umatilla			0	7														. 3	0		. T.	T.	T.	.30	)	- T.	. 1	0	. T.	1.27		2
lue Mt. sawmill				2	1					1	1																						di.

TABLE 2.—Daily precipitation for December, 1913. District No. 12—Continued.

Stations	Watershed.	-	1	-	4	1	1	1	-	1	1	1	I	1	1	1	of m	1		1	1		1				1	1	1		1		
A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
regon—Continued.																															1		
uena Vista	Snake																			. 20		. 10	40		. 40	. 20		10	.30	. 20		. 20	2.
urnsurns Mill	SE. drainage																					. 45	. 40			****	. 54				. 30		
utte Falls	Rogue							00	3					. 14				. 14	. 07	. 01		.07	.14	.30	.07	.22	.05		****	.07	.82	1.20	3
difornia Gulch	Umatilla	1	5										78		25			.31	. 19		.21	. 05				.87				****	. 27	89	0 4
scadia	Willamette							08	5			. 15						. 40	07			. 10	. 27	. 08	19	1 10	08	00	1		25	1.15	5 3
zadero	Rogue				-		0	2 . 10	b			T.			. 03			. 40		T.		. 03 T.	. 31	.05	. 12	. 55	. 10	. 03		.11	. 29		3
iloquin ristmas Lake	Klamath SE. drainage											. 05		. 08					T.	T.	T.	. 28	. 15		.32	. 33	.01	.26		. 10	.80	. 90	3
ear Lake	Willamette							3	5					. 13				.30	.06			. 14	.20	.10			.11	. 16				1.38	
fflumbia Mine	SE. drainage Snake													T				.02 T.	30		.10	T.	.09	.10						T.	1.40	.35	
mb's Flat	Deschutes																																
ndon quille R. lighth'se	John Day Coast						. T.				. 41	.ii		.12	.22			T.	. 12	ïii		. 47	. 20		. 12	. 11		. 06		.35	.10	1.07	
nucopiavallis	Snake														1.14			. 18	.03			. 05	. 41	.07	. 12	105	.03		. 02		.38	1.30	) :
cker Creek	Snake							.01				. 10		T.	.01	.00		.20	T.	T.	T.	T. T.	. 05	T.	.20	. 40	T.		T.	. 15 T.	. 40		)
scent	Deschutes									- T.						0.4	.23					T.	10	.08	T.	.21	. 27	. 10	.31		. 30		)
yville	John Day																1	. 08	T.				*	*	ak	.38			T.	T.	*	. 89	)
adwood	Coast SE. drainage												T.		. 36	Т.	T.	1.05				.57	. 70	. 22	.41	1.01		. 15	. 14		. 15	1.51	
raville	Columbia	.0	7			13	2 .0	1 . 12	0. 9	2		. 13	T.	.06	. 20	. 08		0.0				. 11			. 03			. 02	.06		.32	. 83	3
infur	Umpqua Columbia			.0	3									. 11		****	. 03	. 01	.01	.00	. 02	. 21	T.	.11	. 69	. 03	.02	.11			. 52	. 38	3
10	Umatilla Columbia	1	1	T.	0									****				. 20	T.	****			. 26		T.	, 60	****				. 10	. 10	
body	SE. drainage																	T.				. 10			. 10	.50					. 50	1.00	)
rview	SE. drainage Willamette . Coast				. 0		2		***		. 10	. 06	т.	. 03	. 29	T.	. 80	. 12	.03 T		.08	.35	. 82	. 27	. 37	. 99	.10	. 36	.01	. 21	. 46	1.06	1
Glen																		80	03	.08		. 43	. 41	. 03	.07	1.12	. 23	. 04	. 07	. 15	. 35	1.46	1
rencelyfarm	Malheur													****	. 62	****	****	. 50	. 16	. 20		. 58	. 08	. 34	. 25	. 62	. 09	. 31		- 48	. 49	. 07	-
st Grove	Willamette.		1																			773	.03							****	72		
ce	SE. drainage Rogue		****				T.	. 07	T.		T.	.30	T.	. 23	. 03			.32	. 04	. 24		71	. 70	.18	. 90	. 14		. 06		. 46	1.19	2.11	
diner	Umpqua Umatilla																			97				10					99	200			
sbutte	Deschutes																		. 22	.01		****		. 10		****	****	. 2/2	.04	. 20		****	
ncoe	Columbia										. 29		.30					T	10		30	15	. 20	. 25	. 68					. 60	1.70	. 19	
nora	Umpqua Coastdo Rogue						. 18			. 95	. 05		. 40	. 48	1.00			1.65	. 10			. 10	. 67	.10	. 05	. 20	. 25	. 10		. 15	. 60	. 50	1
den Fallsnts Pass	Rogue						- 06	. 27			. 06	. 21		. 12	. 19			1.01	. 81	. 12	.01	. 52	. 88		. 49	. 68		. 19		. 23		1.91 1.49	
ss Valley	John Day				· levino	I a war		10000		Ave.								1			****	.02	. 00		. 45		T.		. 12	. 18	. 35	. 04	1
enhorn	Snakedo																	. 09	. 21		.08 T.	T. T.	. 65	.08	. 02	- 58	1.			. 18			1 2
rdane ppy Home	Columbia						10	94				70	10	98	10			70	. 04	20	9.4	T.			.01	. 01		. 01			1. 24	3 54	1
eldell	Willamette						- 10	. 4/3			. 00	. 12	. 09		. 10		. 08	. 18	. 10		. 13	. 25	. 08	T.	. 33	. 26				. 10	1.05	.37	1
dworks	Willamettedo Columbia Umatilla G r a n d e	. 10	T.					. 23				. 10		. 08	. 13	. 10		. 10	. 36			. 08	.50		. 46	. 86	. 38	. 13	Т.	. 10	. 28	1. 22	1
miston	Umatilla			. 02	. 02									. 01			. 01	. 08	. 02				.30	. 15		. 10		T.	T.			. 42	1
ard	Grande Ronde.																	. 10				****	. 10			. 05		****	T.	Т.		. 05	1
crest Orchard	Rogue																																
lywood Orchard.	Columbia							.10				T.			. 10			.10	****				. 16			.14				****	.16	.78	*
od River No. 2 od River No. 2 od River No. 3	do			. 02	T.	T.		. 08	T.			. 05	T.		. 07	T.	T.	. 07	T.		T.	. 15	. 16	T.	. 45	. 14	T.	.14	. 05	T.	. 16	. 78	
d River No. 4.	do			T.				. 20				. 10						. 13				T.	. 05	. 03	.37	. 15		. 12			.11	. 87	1 3
verwardville	Willamette:							. 40				. 32		. 03	. 07	. 02			. 45			. 45	. 20	.17	.37	. 22	. 26	. 03		. 04	. 41	1.47	4
	Ronde.	* * * * *																Î	. 00				1		. 02		****						1
tington	Snake John Day													T		. 05		. 05	. 10	.01	. 12	.01	.35	T.	.07	. 57	.01		T.	.02	. 05		
erial	Deschutes														T.	. 01		T.			. 08	. 10	. 07	. 16	. 20	. 091	T.		. 14	. 21			1
sidesonville	Snake Rogue								.04			T.		.03				T.		.14		.06	. 22	. 21	. 20	. 16					. 55		
ph	Grande																		. 40					. 40									(
nath Falls	Ronde. Klamath											. 02		. 16				. 05		T.		. 10	. 25		. 23			. 20		T.	. 65		
rande	Grande Ronde.																	. 25					. 20		. 10	. 10						. 20	(
law	Deschutes																																
view	Pitt						T					T.	02	T.			T	.02	21	08	. 02	. 30	00	.09	.31	. 50			. 04	T.	. 61	. 68	1
Creek	John Day																1.	T.		T.	.02		. 20		. 20	T.		. 00	T.	. 10	.57	. 40	(
innvillehfield	Willamette . Coast						. 09					.37		. 09	25			. 25	. 02 .	04	.01	55	74	30	. 15	97	. 05	. 10	. 03	. 20	.54	2. 12	3
гу	Deschutes																	. 03	T.			T.	. 50		. 20	. 95		. 05	T.	T.	. 33	. 51	2
	Columbia Rogue			.02		.00	.01		.01	.01		. 09		. 13	. 08			. 12	. 05			T.	. 33 .	23	. 85	.11		. 30		.14	.31	. 98	1
	Interior .																			. 07		T.	. 14	. 23	. 40	T.	T.	T.	T.	T.	.30	. 90	1
lius	drainage. Deschutes				200																	. 06 .			. 18						1.00		1
monte Farm	Willamette		****	****		****	. 10	.09				10		. 14	.04	10	. 02	. 15				. 21	.36	.07	. 12	. 74		. 03		. 07	. 40	. 90	0.0
ntain Ranch	Columbia Rogue		****			. 17	. 01	.31	T.			. 19 .	***	. 58	. 20	. 13	. 02	. 10	. 10 .	T.	.18	. 10	. 30 .	***	. 18	. 30	. 10	. 50		. 25	. 25	1.48	2
nt Angel	Willamette							. 23					· 04 .		. 00 .			.01	. 10	· UO .		. 16	. 30 .	***	. 17	. 30	. 15	. 04	. 04		. 32		
ek	Columbia Umpqua											.06	T.				1	. 26	.05				.20	. 34 .				. 06	46.00			.40	
port	Coast	. 03					. 26					.36 .			. 07	. 02	1	. 10	. 13 .				. 67	. 35	. 69	. 59	. 11	. 24		. 09	. 70 1	1.90	7
000	Deschutes																	. 10	L. l.			. 20 .	. U1 .			. 02	. 03	. 19		T.	. 28	. 016	1

TABLE 2.—Daily precipitation for December, 1913. District No. 12—Continued.

															]	Day	of mo	onth															
Stations.	Watershed.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Thotal
regon—Continued.		_																															
rtley	Columbia			. 09				1				. 01						. 06				. 05	. 48		. 63	. 20		. 24			. 50	. 59	2
nyrybaa	Owwhee												1					. 23			0000	.00	. 35	****	. 90			T.		. 32	T.		
aisley	SE. drainage Columbia Umatilla Deschutes																	T.				T.								T.	. 06	.74	0.
arkdale	Columbia		. 03					. 12		. 10											0000	+ 000			. 21	.31				. 09	.31	. 12	
andleton	Umatilla		.01	T.														. 15	.08				. 20	.13	T.	.18	.03		.09		.04	. 15	1
minsula	Deschutes																												0000				
																		. 10					. 35	.34	.24	.85				. 44	1.00	1.70	III.
lot Rock	U matilla Willamette Coast Deschutes							70				****		****			****					. 20	. 20	.05	. 25	. 15	.20			****	.33	.20	Ш
ortland	W mamette					T.	. 10	T.			T.	. 10	70	.00	.19		. 03	.20	.01	10	20	.22	. 23	.02	. 20	. 03	.17	. 02	.65	.00	. 33	. 81	
ort Orford	Donohuton		****	****	****	****	. 00			****	- 23	. 66	1.	. 40	.01	m	T.	.73	.27	. 12	. 10	. 24	10		1. 40	91	70	.34	.00	. 43	. 28	1.35	
stwell Butte	do					****	****	****								1.	1.	.04	.00			0000	10		20	.01	T.	10	.05	15	. 45	.64	1
wer House	Columbia		****					****	****			****	****	****									. 10		. 30	****		. 10		. 10	. 40	****	1
airie City	John Day	.01	T			****		****										11	.03				.26	T		0.8	CS	1	0.4		0.4	.17	1
ineville	Deschutes																	T.	T.		****		. 10		T.	. 20	.00	****	.03	****	.02		
ospect	Columbia John Day Deschutes Rogue										.04		T.	. 16				.29	. 14	.06		. 13	.27	. 42	. 35	. 52	. 18			. 19	.71	1.47	1
																		100	644				44		308	9.4		C)A			K91	0.4	
msey	Columbia John Day Columbia			. 05																	*****	. 23	.07		. 53	.20		. 11			.20	. 16	
nge	John Day																	. 10				T.					T.		.20		. 20	.60	
v Creek	Columbia													T.				T.					.20			. 20		. 07				. 05	
dmond	Deschittee							1	1					1			1					. 12					.50			. 10	.30	.20	
ston	Umpqua Snake. Umpqua							.06					.06		.07			.66	. 06			.40	.31		.08	1.16	.03	.09	.05	.13	.42	1.22	
hland	Snake																	. 10					. 70	. 10		. 10	T.				.50		ı
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mmit	Gr'de Ronde Willamette	.04					.02	. 25				. 51		.08	. 20			. 85	.03			.31	. 42	.20	- 40	- 672		. (10)	I . EEK	.10	.37	.99	ā
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Illiams																																	

<sup>\*</sup> Precipitation included in that of the next measurement.
† Separate dates of falls not recorded.
| Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

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ate.	Kali	ispell.	Miss	oula.	Afton	, Wyo.	1	oise.		ners	Hots	pring.	Lewi	ston.	Mac	kay.	Ne Mead		Poca	tello.	Saln	non.	Shos	none.	Veri	on.	Wes	ton.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min
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Table 3.—Maximum and minimum temperatures at selected stations for December, 1913. District No. 12—Continued.

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Date.	Walla, Wash.		Walla,		hland. Baker.		Eugene. Hermis		iston.	on. Marshfield.		Portland.		Port Orford.		Prineville.		Roseburg.		The Dalles.		Vale.		
	Max.	Min.                              Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.									
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6	36 42 42 29 49 52	23 21 29 26 25 33	48 47 51 45 45 57	28 31 29 38 33 37	34 29 30 29 30 42	14 14 21 21 15 27	50 52 55 45 51 53	39 38 36 35 37 42	35 35 38 34 33 43	6 18 26 24 28 29	52 51 57 48 55 55	38 40 34 37 43 44	46 49 42 43 43 47	37 39 37 37 37 40	51 53 55 53 52 54	34 46 33 40 48 44	40 35 45 37 40 37	5 24 6 19 7 19	48 54 45 45 49 48	39 42 40 38 39 36	35 35 34 35 35 41	20 26 23 30 27 31	34 24 26 25 24 40	1 1 1 2
Ieans	36. 1	27.0	45.6	30.7	34.9	19.3	48.6	35.3	37.8	25.4	52.7	36.8	44.3	37.1	53.0	39.2	43.4	16.1	46.8	36.2	39.5	29. 4	36.2	15.

<sup>\*,</sup> b, \*, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

# WEATHER, FORECASTS, AND WARNINGS.

By EDWARD H. BOWIE, District Forecaster.

#### NORTHERN HEMISPHERE PRESSURE.

Alaska.—Over this area pressure averaged decidedly below normal for the month, particularly over the Aleutian Islands. Lows occurred about the 2d, 7th-8th, 10th, 14th, 22d, 27th-28th, and on the last of the month; highs occurred about the 5th-6th, 9th, 11th-12th, 17th, 20th, 24th, 26th, and 29th.

Honolulu.—The average pressure was slightly above normal. Pressure was generally low during the first and last weeks of the month and high during the second and third. The principal highs of the month occurred from the 9th to the 12th and on the 24th; and the principal lows on the 5th-6th and 27th.

Iceland.—Pressure averaged slightly below normal, being almost continuously so from the 1st to the 18th and generally above normal during the remainder of the month. Lows occurred on the 2d-3d, 9th, 11th-12th, 13th, 15th, 17th, and 25th-26th; and highs occurred on the 5th, 10th, 14th, 19th, 21st, 23d-24th, and 28th-29th.

Azores.—During the month pressure was almost continuously above normal, the mean for the month being well above the seasonal average. Lows occurred on the 8th, 26th–27th, and 30th; and highs from the 4th to 7th, 9th to 13th, 22d to 24th, and on the 28th.

Siberia.—Over the western portion pressure below normal predominated, there being only occasional reactions to high pressure, the principal one occurring about the 19th–20th. Over the eastern portion, however, pressure averaged above normal, the principal highs occurring from the 1st to 4th, from the 11th to 17th, and about the 22d, 25th, and 29th.

## WEATHER IN THE UNITED STATES.

The month opened with moderate high-pressure areas on the north Atlantic and north Pacific coasts, with a low-pressure area southeast of the Bermudas, and another over southwestern Colorado. Pressure became high over northern districts following the movement of the Colorado low southeastward to Texas where it later lost intensity.

Pressure remained high over the northern districts from the north Pacific coast to the middle Atlantic coast. By the morning of the 4th the remainder of the Colorado low took on renewed energy and moved eastward and southeastward to Texas by the morning of the 6th, and during the next 24 hours broke through the saddle of high pressure over the northern districts, being central on the morning of the 6th over northeastern Oklahoma and on the following morning over northern Lake Huron with greatly increased development. By the morning of the 8th it was over Maine with lowest pressure reading at Greenville (28.88), whence it passed during the next 36 hours to the Grand Banks.

A sharp recovery to high pressure followed, the high center moving eastward and southeastward to the Gulf States, causing moderate changes to colder weather over all districts, frosts being quite general over the west Gulf States on the 8th and 9th, and over the east Gulf and

southern portions of the South Atlantic States on the 9th and 10th, warnings for which were previously issued.

A low passed along the northern border from Medicine Hat on the morning of the 7th to the Grand Banks on the morning of the 12th.

Pressure continued high from the Rocky Mountains to the South Atlantic States, and another low of slight intensity passed along the northern border and was central over the mouth of the St. Lawrence on the morning of the 14th. It passed eastward to the Grand Banks by the morning of the 16th.

On the evening of the 12th conditions became unsettled over the West Gulf States, and showers occurred over that region. This condition passed slowly eastward across the Gulf States and gave showers over portions of that region until the 16th.

Pressure still remained high from the northern Rocky Mountain region to the South Atlantic States, and a low that made its appearance on the morning of the 14th over British Columbia passed along the northern border without precipitation of consequence to a position over the Grand Banks by the 20th.

Conditions over the Southwest became unsettled during the 15th, and in the two days following showers occurred over the southern Rocky Mountain region, the southern Plains, and West Gulf States. On the evening of the 16th a disturbance of slight intensity was central over southern Texas, which during the next 36 hours moved eastward with decreased energy, having caused showers over the Gulf States.

A high-pressure area that had persisted for some days over the northern Rocky Mountain region was central on the morning of the 18th over Iowa and in the next 48 hours passed eastward to a position off the Atlantic coast.

On the evening of the 17th pressure had fallen from Alberta southward to the southern Plateau and on the following morning lows were central over Saskatchewan and southern Utah. A trough connecting these two lows advanced slowly eastward to the Atlantic coast by the evening of the 21st, having caused precipitation over the southern Rocky Mountain region and southern Plains States and from the Mississippi Valley eastward.

Following the passage of this low, pressure became high over the Northwest on the morning of the 19th and spread later southward and eastward, causing changes to colder weather over the Rocky Mountain region and thence eastward over the central and northern districts to the Atlantic coast.

After the passage of the previous low areas, pressure remained below normal over Arizona, and on the morning of the 21st a low-pressure area was central over southwestern New Mexico, which during the following 24 hours passed to the Louisiana coast. It thence turned northeastward, and on the morning of the 23d there were two centers, one over Alabama and the other over Indiana. During the 48 hours following, the Indiana storm decreased in intensity, while the Alabama center developed increased energy, causing high winds on the Atlantic

coast from New York to Eastport, warnings of which were issued on the 23d. By the morning of the 25th the Alabama disturbance passed northeastward to the ocean.

Following the passage of this storm there was no immediate reaction to higher pressure, although it was high over

the northwest.

On the morning of the 22d pressure was high off the Washington coast, and during the succeeding 24 hours it fell decidedly over the Rocky Mountain region, and by evening of that date a low was central over northwestern Texas. By the morning of the 24th the disturbance was central near the south Texas coast with a second illy-defined center over southwestern Oklahoma. The southern center passed eastward and northeastward with increased intensity, causing high winds on the Gulf coast. Storm warnings were ordered on the 24th for the Gulf and middle and south Atlantic coasts, and on the 25th were extended to include the north Atlantic coast. From a position over extreme northwestern Georgia on the 25th the disturbance passed in 24 hours to northern New Jersey and during the succeeding 24 hours to Newfoundland, causing high winds and gales along the entire Atlantic seaboard. Attending the passage of this storm precipitation occurred from the Rocky Mountains westward to the Pacific coast, over the west Gulf States and from the Mississippi Valley eastward. Pressure increased and temperature fell decidedly to below zero over the Canadian Northwest and, closely following the eastward movement of the low, temperatures feel generally over all districts east of the Rocky Mountains. The crest of the high area reached the North Atlantic States on the morning of the 29th.

Pressure was low off the north Pacific coast during the 24th and 25th, and during the succeeding 48 hours an illy-defined disturbance passed thence to the west Gulf coast. Attending its passage eastward off the south Atlantic coast showers occurred generally through the

Gulf and South Atlantic States.

Following the passage of the above-mentioned storm southeastward from the north Pacific coast, pressure became high over the northern Plateau, the center persisting over that region for several days, after which it settled slowly southward with decreased intensity and at the last of the month was over northwestern New Mexico.

On the evening of the 27th a low of moderate intensity was over Alberta, and during the several days following passed eastward along the northern border, no precipitation of consequence attending its passage. On the evening of the 29th pressure had fallen over the North Pacific States, and on the following evening a disturbance was central off the Washington coast which on the last day of the month had passed to southern Alberta, having caused precipitation over the Coast States and northern

and central Plateau region. On the last day of the month pressure was high from extreme eastern Ontario southwestward to the West Gulf States and thence westward to the south Pacific coast, the principal low-pressure area being central over southern Alberta and an unsettled condition obtained over the South Atlantic States.

Average temperatures and departures from the normal.

Districts.	Num- ber of sta- tions.	Average tempera- tures for the current month.	Depart- ures for the current month.	Accumu- lated depart- ures since Jan. 1.	Average depar- tures since Jan. 1.
New England	12 15	33. 9 38. 6	+4.6 +3.7	+27.3	+2.3
South Atlantic		49, 0	+1.9	+25.2	+2.1
Florida Peninsula 1	9	62.5	+2.0	+17.3	+1.
East Gulf		50. 2	+1.1	+ 8.0	+0.8
West Gulf.	11	48.7	-0.4	- 0.4	0.1
Ohio Valley and Tennessee		39. 1	+2.3	+19.0	+1.0
Lower Lakes		33.5	+4.3	+17.9	+1.
Upper Lakes		31.9	+7.5	+17.5	+1.
North Dakota 1		22 4	+8.9	+13.6	+1.
Upper Mississippi Valley	13	35, 3	+8.0	+23.6	+2.
Missouri Valley	12	33.4	+6.5	+15.2	+1.
Northern slope.		23.8	+0.1	- 5.2	-0.
Middle slope		31.4	+1.5	+ 7.7	+0.0
Southern slope 1	8	40.2	-1.7	- 4.9	-0.
Southern Plateau 1	9	40.5	-1.9	-21.2	-1.5
Middle Plateau 1		24.7	-2.5	- 9.3	-0.1
Northern Plateau 1	10	28.5	-1.7	-13.1	-1.
North Pacific		42.1	+0.5	- 0.7	-0.
Middle Pacific		47.4	-1.1	+ 2.4	+0.
South Pacific	4	52.0	-1.0	+13.4	+1.

<sup>1</sup> Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

	37	Ave	rage.	Departure.			
Districts.	Num- ber of sta- tions.	Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.		
New England	11	3, 15	91	-0.30	-4.90		
Middle Atlantic		2.26	72	-0.90	-3.30		
South Atlantic	11	3.12	86	-0.50	-6.80		
Florida Peninsula 1	9	3.31	127	+0.70	-7.60		
East Gulf	11	2.76	61	-1.80	-2.30		
West Gulf		5.74	167	+2.30	+4.90		
Ohio Valley and Tennessee	14	2.08	62	-1.30	+1.00		
Lower Lakes	10	1.57	55	-1.30	+0.70		
Upper Lakes		0.46	22	-1.60	-2.90		
North Dakota 1		0.07	12	-0.50	-4.10		
Upper Mississippi Valley	14	0.66	38	-1.10	-3.60		
Missouri Valley	12	1.98	183	+0.90	-3.50		
Northern slope	9	0.81	100	0.00	+0.40		
Middle slope	6	3.28	420	+2.50	+0.50		
Southern slope 1	8	2.71	244	+1.60	+0.50		
Southern Plateau 1		0.55	73	-0.20	-1.20		
Middle Plateau 1		1.12	110	+0.10	-0.30		
Northern Plateau 1		1.05	60	-0.70	-0.90		
North Pacific	7	3.65	46	-4.30	-8.30		
Middle Pacific	6	6.08	139	+1.70	-5.60		
South Pacific	4	2.41	100	0.00	-1.40		

<sup>1</sup> Regular Weather Bureau and selected cooperative stations.

# Average relative humidity and departure from the normal.

Districts.	Average.	Depart- ure from the normal.	Districts.	Average.	Depar- ture from the normal.	
New England Middle Atlantic South Atlantic Florida Peninsula East Gulf West Gulf Ohio Valley and Tennessee Lower Lakes Upper Lakes North Dakota Upper Missksippi Valley Valley	74 74 78 82 80 80 80 81 78	- 2 - 1 0 0 + 3 + 6 + 6 + 2 - 1 - 1	Missouri Valley Northern slope Middle slope Southern slope Southern Plateau Middle Plateau Northern Plateau North Pacific Middle Pacific South Pacific	76 65 77	+ 6 + 16 + 16 + 16 + 17 + 2 + 3 + 4 + 4	

# Average cloudiness and departure from the normal.

Districts.	Average.	Depart- ture from the normal.	Districts.	Average.	Depar- ture from the normal.	
New England	6.2	+0.7	Missouri Valley	5.5	+0.3	
Middle Atlantic	5.8	+0.6	Northern slope		-0.8	
South Atlantic	5.6	+0.7	Middle slope		+1.1	
Florida Peninsula		+0.9	Southern slope		+0.1	
East Gulf.	6.8	+1.3	Southern Plateau		+0.6	
West Gulf	6.6	+1.4	Middle Plateau	5. 2	+0.4	
Ohio Valley and		,	Northern Plateau	6.8	0.0	
Tennessee	6.7	+0.4	North Pacific		-0.1	
Lower Lakes	7.4	-0.3	Middle Pacific	6.3	+0.9	
Upper Lakes	6.4	-0.9	South Pacific	5.5	+1.2	
North Dakota Upper Mississippi	3.8	-1.6				
Valley	6.1	+0.3				

## Maximum wind velocities.

Stations.	Date.	Ve- loc- ity.	Direc- tion.	Stations.	Date.	Ve- loc- ity.	Direction.
Block Island, R. I	8	62	w.	Nantucket, Mass	8	55	sw.
Do	9	58	nw.	New York, N. Y	7	64	nw.
Do	19	50	nw.	Do	8	85	nw.
Do	25	54	ne.	Do	18	52	nw.
Do	26	60	ne.	Do	23	50	e.
Buffalo, N. Y	8	54	W.	Norfolk, Va	8	58	nw.
Do	9	52	SW.	North Head, Wash.	6	56	86.
Do	10	54	NW.	Do	13	60	98
Do	12	58	SW.	Do	27	68	NO.
Do	16	54	SW.	Do	30	52	56.
Do	17	50	sw.	Point Reyes Light,			200
Cheyenne, Wyo		56	W.	Cal	12	57	S.
Cleveland, Ohio	8	60	nw.	Do		50	nw.
Duluth, Minn	6	52	nw.	Do	21	54	8.
Hatteras, N. C	8	50	nw.	Do	22	62	SW.
Do	25	51	W.	Do	24	70	8.
Mount Tamalpais,	20	OA		Do	25	50	nw.
Cal	1	54	n.	Do	29	56	8.
Do		52	ne.	Do	30	64	8.
Do	22	53	SW.	Do	31	69	8.
Do	25	70	nw.	Providence, R. I	8	64	W.
Do		62	6W.	Savannah, Ga	25	54	aw.
Do	31	60	SW.	Do	26	50	W.
Mount Weather, Va.		52	nw.	Tatoosh Island,	20	30	w.
Do Do	7	60	nw.	Wash	6	56	8.
Do		84	nw.	De De	21	62	
Do	9	58		Do	21	56	e.
Do	18	54	nw.	Do	28	52	e.
Do	26		nw.	Do			e.
Do		72	nw.	Trenton, N. J	8	54	W.
Do	27	56	nw.	Do	26	50	ne.

## RIVERS AND FLOODS FOR DECEMBER, 1913.

By Alfred J. Henry, Professor of Meteorology.

Continuous rains from the 2d to the 7th caused a sharp rise in the Arkansas River below Fort Smith, between the 7th and 11th, but flood stages were not reached. At Whitecliffs, Ark., on the Little River, the flood stage, 28 feet, was reached on the 10th. The Sulphur River at Finley, Tex., reached a stage of 28.4 feet, 4.4 feet above flood stage, on the 9th and 10th. The Red River at Fulton, Ark., crested at 33.2 feet, 3.2 feet above flood stage, on the 12th. About \$10,000 damage was done by the breaking of the levees, and \$1,000 worth of crops was destroyed. It is estimated that several hundred thousand dollars worth of property was saved by the timely warnings of this bureau.

It is expected that a report on the severe floods in Texas during December, 1913, will shortly appear in the Engineering News, New York, N. Y

Some of the more important details of the Texas floods

will be found in the text of district No. 8.

The Sabine River rose steadily from the first of the month and reached a stage of 27.8 feet, 2.8 feet above flood stage, at Logansport, La., on the 24th.

Heavy rains during the last week of the month caused a rapid rise in the rivers of North Carolina and South Carolina. The Wateree River, at Camden, S. C., reached 27.5 feet, 3.5 feet above flood stage, on the 31st. The Santee River at Rimini, S. C., was at 12.8 feet, 0.8 feet above flood stage, on the 31st; and the Saluda River at Chappells, S. C., reached 16.7 feet, 2.7 feet above flood stage on the 31st.

As a result of heavy rains over the entire watershed of the Sacramento River from the 18th to the 26th, sharp rises occurred in all streams north of the American River, especially in the Sacramento between Knights Landing and Red Bluff, and at the end of the month the streams were rising rapidly and dangerously high stages were reached. On the 31st the following stages were recorded: At Folsom on the American River, 15.2 feet, on the Sacramento River at Red Bluff, Cal., 28 feet, flood stage 23 feet; Kennett, Cal., 26.6, flood stage 25 feet.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

## SPECIAL PAPERS ON GENERAL METEOROLOGY.

#### RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Junior Professor in Charge of Library.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies.

Angenheister, G[ustav Heinrich].
Über die dreijährige Luftdruckschwankung und ihren Zusammenhang mit Polschwankungen. Vorläufige Mitteilung. 13 p.
8°. (Aus den Nachrichten der K. Gesellschaft der Wissenschaften zu Göttingen. Math. phys. Kl. 1914.)
Bavaria. K. Hydrofechnisches Bureau.

Grösste Bodenfrosttiefen in Bayern. Ermittelt aus Messungen an 1430 Froststationen während der Winter 1905/06 bis 1912/13. München. 1913. Map in 2 sheets. 108½ x 73 cm.; 108½ x 69

cm. [Scale, 1:500,000.]
Niederschlags-Verteilung in Bayern. Mittlerer Jahresniederschlag des zehnjährigen Zeitraumes 1901–1910. München. 1912. Map in 2 sheets. 108½ x 73 cm.; 108½ x 69 cm. [Scale, 1:500,000.]

Bulgaria. Institut météorologique central.

Annuaire. Année 1910. [Bulgarian and French text.] Sofia.

1913. [iv], 144 p. f°.

Danyszówna, Regina.

rozmieszczeniu geograficznem opadów atmosferycznych w królestwie Polskiem. Sur la distribution géographique des précipitations en royaume de Pologne. [Polish text; French summary.] Warszawa. 1913. 30–42 p. 8°. (Extrait des Comptes rendus de la Société scientifique de Varsovie, 1913. 6 année, fasc. 1.) Denmark. Meteorologiske institut, & Hamburg. Deutsche See-

Tägliche synoptische Wetterkarten für den Nordatlantischen Ozean und die anliegenden Teile der Kontinente. Cartes synoptiques journalières du temps. . . . 26. Jahrgang. Dez. 1906–Nov. 1907. Copenhague et Hambourg. 1912–13. 4 parts. 8°.

Fröhlich, Otto.

Pilotballonbeobachtungen in Breslau zwecks Bestimmung der Windrichtung und Windstärke in oberen Luftschichten während der Jahre 1911 and 1912. Breslau. 1913. 35 p. 8°. (Sonder-abdruck: Jahresbericht der Schlesischen Gesellschaft für vaterländische Cultur. Naturw. Sektion. Sitzung vom 12. November 1913.)

Gorczyński, Władysław. Notatka historyczna o spostrzeżeniach warszawskich nad temperatura povietza. Notice historique relative aux observations de la température de l'air faites à Varsovie. [Polish text; French summary.] Warszawa. 1913. 124-143 p. 8°. (Extrait des Comptes rendus de la Société des sciences de Varsovie, 1913. 6 année, fasc. 2.)

W sprawie zmian d'ugoletnich temperatury powietrza w Polsce. Contribution à l'étude des variations séculaires de la température en Pologne. [Polish text; French summary.] Warszawa. 1913. 7-30 p. 8°. (Extrait des Comptes rendus de la Société scien-tifique de Varsovie, 1913. 6 année, fasc. 1.)

Gorría y Royan, Hermenegildo.

Notas para el avance del mapa meteorológico de Cataluña. Barcelona. 1913. 15 p. map. 4°. (Memorias de la Real academia de ciencias y artes de Barcelona. 3º época, vol. 10, núm. 17.)

Great Britain. Meteorological office.

The observer's handbook, 1913. London. 1913. xxiv, 7-157 p.
8°. [Contains an "Introductory memorandum on the extension of the centimetre-gramme-second system of units to meteorological measurements;"] also meteorological tables adapted for the C. G. S. system.

Guam. Agricultural experiment station.

Annual report, 1912. Washington, [D. C.] 1913. 29 p. 8°.

(Under the supervision of the U. S. Office of experiment stations.) [Contains graphs of maximum and mimimum temperatures for the year ending June 30, 1912.]

Hann, Julius.
Lehrbuch der Meteorologie. Dritte, unter mitwirkung von Prof.
Dr. R. Süring, umgearbeitete Auflage. Lieferung 1-2. Leipzig. 1913. 192 p. 4°.

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Heilmann, G[ustav]. Über die Herkunft der Staubfälle im "Dunkelmeer." 11 p. (Sonderabdruck: Sitzungsberichte der K. preussischen Akademie der Wissenschaften, Berlin. Phys.-math. Cl., 1913, Bd. 14,

Psychologisch bedingte Fehler bei meteorologischen Beobach-tungen. 283-294 p. 8°. (Sonderabdruck: Sitzungsberichte der K. preussischen Akademie der Wissenschaften, Berlin. Phys.-math. Cl., 1913, Bd. 14.)

Kamińska, E. W.

Die Dauer der Schneedecke auf dem Nordabhange der Karpaten. Cracovie. 1912. 871-884 p. plate. 8°. (Extrait du Bulletin de l'Académie des sciences de Cracovie. Classe des sci. math. et nat., sér. A, nov. 1912.)

Myrbach, O. von.

Die wichtigsten Grundbegriffe und Grundlagen der Wetter-prognose. (In Österreichische Rundschau, 15. Juni 1913, Bd. prognose. (In Österrei 35, Heft 6, p. 453-470.)

Negro, Carlo.

Sulla formazione della rugiada. 6 p. 4°. (Estratto dagli Atti della Pontificia accademia Romana dei Nuovi Lincei. Anno 66, sess. 6ª del 18 Maggio 1913.)

Netherlands. K. Meteorologisch instituut.

Oceanographische en meteorologische waarnemingen in den Indischen Ocean. December, Januari, Februari (1856–1910). Tabellen & kaarten. [Dutch and French] Utrecht. 1913. 2 v. f°. (Pub. no. 104.)

Nipher, Francis E.
Variations in the earth's magnetic field. 1913. 109-124 p. xxi-xxiv plates. 8°. (Transactions of the Academy of science of St. Louis, vol. 22, no. 4.) [Discusses the relation between local weather conditions and local magnetic storms.]

Osservatorio astronomico della R. Università.

Risultati di osservazioni meteorologiche, inseriti nel Bollettino statistico mensile del comune di Padova, 1912. Padova. n. d. [14] p. 12°

Philippine Islands. Weather bureau.

Annual report of the director, 1910. Part III. Meteorological observations made at secondary stations. Manila. 1913. 268

Schmauss, A[ugust].

Münchener aerologische Studien. No. 5. Die Veränderlichkeit der Steiggeschwindigkeit von Registrierballonen. München. 1913. G 5 p. f°. (Sonderabdruck aus den "Beobachtungen der meteorologischen Stationen im Königreich Bayern," herausg. von der K. B. Meteorologischen Centralstation. Bd. 35. Jahr-

Die münchener Registrierballonfahrten im Jahre 1912. Mit einem Anhang: Allgemeine Ergebnisse der Fahrten von 1906–1912. München. 1913. D 47 p. f°. (Sonderabdruck aus den "Beobachtungen der meteorologischen Stationen im Königreich Bayern," herausg. von der K. B. Meteorologischen Centralstation. Bd. 34. Jahrgang 1912.)

Toronto observatory.

Results of meteorological, seismological and magnetical observations for the year 1912. Toronto. 1913. 44 p. 12°. (Canada. Department of marine and fisheries.)

Wallin, J[ohn] E[dward] Wallace.

Psychological aspects of the problem of atmospheric smoke polution. Pittsburgh, Pa. 1913. 46 p. 8°. (Mellon institute of industrial research. Smoke investigation bulletin no. 3.) [Includes a discussion of the meteorological aspects of the problem.

## RECENT PAPERS BEARING ON METEOROLOGY.

C. FITZHUGH TALMAN, Junior Professor in Charge of Library.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers and other communications bearing on meteorology and cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled. It shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather

Nature. London. v. 92. 1914.

Perry, John. "Atmospherics" in wireless telegraphy. p. 528.

(Jan. 8.)

Hall, Wilfred, & Morris-Airey, H. "Atmospherics" in wireless telegraphy. p. 554-555. (Jan. 15.)

Symons's meteorological magazine. London. v. 48. January, 1914.

Edmund Douglas Archibald, M. A. 1851-30th November, 1913.

p. 221-222. [Obituary.]

Terrestrial magnetism and atmospheric electricity. Baltimore. v. 18.

December, 1913.

Swann, W. F. G. The atmospheric potential gradient, and a theory as to the cause of its connection with other phenomena in atmospheric electricity, together with certain conclusions as to the expression for the electric force between two parallel charged

plates. p. 163-184.
Washington academy of sciences. Bulletin. Baltimore. v. 4. January

Kimball, H[erbert] H[arvey]. A return to normal atmospheric transparency. p. 17-25.

Archives des sciences physiques et naturelles. Genève. t. 36. 15 décem-

Mercanton, Paul L[ouis]. Expédition suisse au Groenland. p. 576-578. [Describes meteorological conditions, meteorological observations on west coast, etc.]

Dutoit, Paul. Les puits soufflants de Bisel (Haute-Alsace). p. 581.

Beiträge zur Physik der freien Atmosphäre. Leipzig. 6. Band. Heft 2.

Dietzius, Robert. Zur Fälschung der Bahnen von Pilotballonen durch vertikale Luftströmungen. p. 57-72.
 Peppler, Albert. Zur Kenntnis der Luftströmungen in grossen Höhen über Zyklonen und Antizyklonen. p. 73-99.
 Nadler, Georg. Einige Folgerungen für den Aufbau der Atmos-

phäre aus den Registrierballonbeobachtungen der Internatio-nalen Kommission für wissenschaftliche Luftschiffahrt. p. 100-139.

Himmel und Erde. Berlin. Jahrgang 26. Dezember 1913.

Dove, K[arl]. Das Klima von Südwestafrika. p. 113-126.

Meteorologische Zeitschrift. Rraunschweig. Band 30. Dezember 1913.

Michelson, W. Einige Verbesserungen am bimetallischen Lamellen-Aktinometer. p. 577-580.

Anderkő, Aurel v. Die Wärmebewegung im pseudo-isotropen Erdboden. p. 580-589.

Robitzsch, Max. Sonnenscheinregistrierung auf Spitzbergen. p. 594-599

Schindelhauer, F. Über die Elektrizität der Niederschläge. p.

Grosse, [W.] W. Hillers: Über eine leicht beobachtbare Luft-spiegelung bei Hamburg und die Erklärung solcher Erscheispiegelung bei Hamburg und die Erklarung solcher Erscheinungen. p. 602-604.

Gockel, A[lbert]. Zur Frage nach der Feststellung der mittleren Bewölkungsziffer. p. 604-605.

Ficker, H[einrich] v. Die Wirkung der Berge auf Luftströmungen.

p. 608-610.

Sapper, Karl. Regenmessungen an der pazifischen Abdachung der Republik Guatemala 1912. p. 614-616.

Heim, Gustav. Nervenerregende Winde. p. 617.

Kassner, C[arl]. Zur Namenskunde der Winde. p. 619. [Describes a 16-point Italian windrose in the Piazza di San Pietro,

scribes a 16-point Italian windrose in the Piazza di San Pietro, Rome.]

Aganin, M. Savinow, S. J.: Die maximalen Werte der Sonnenstrahlung seit 1892 nach Beobachtungen in Pawlowsk. Die Verminderung der Intensität in der zweiten Hälfte von 1912. p. 621-623. [Abstract of Russian memoir.]

Physikalische Zeitschrift. Leipzig. 15. Jahrgang. 1. Januar 1914.

Kähler, K[arl]. Registrierungen des Emanationsgehalts der Bodenluft in Potsdam mit dem Benndorf-Elektrometer. p. 27-21

27-31.

Wright, J. R., & Smith, O. F. Eine Bestimmung der Änderung des Gehaltes der Atmosphäre an Radiumemanation mit der Höhe. . . . p. 31-39. [Translated by Max Iklé from the Eng-

lish manuscript.]

Prometheus. Leipzig. Jahrgang 25. 1914.

Tschaplowitz, F. C. Über Luftfeuchtigkeit, psychische und physiologische Wirkungen und Wohnungshygiene. p. 215-218; 229-231. (Jan. 3, 10.)

Wetter. Berlin. 30. Jahrgang. Dezember 1913.

Thraen, August. Die Wärmedepressionen im Mai und ihr Einfluss, auf der Niederschlag an der deutschen Nord, und Otseen.

Thraen, August. Die Warmedepressionen im Mai und ihr Einfluss auf den Niederschlag an der deutschen Nord- und Ostseeküste. p. 270–280. Hennig, Richard. Hagel-Katastrophen. p. 265–270.

### NOTICE OF CHANGE IN THE PUBLICATION OF CLI-MATOLOGICAL DATA.

In accordance with plans recently formulated announcement is made of the following general change in the manner of publishing statistical data collected by the Weather Bureau.

Beginning with January, 1914, the statistics now assembled to form these detailed tables for the 12 large climatological districts defined by the great watersheds, will continue to be assembled in tables similar to these, but they will be arranged and published by States instead of districts. The tables for each State will form one report prepared at the section center of that State, except in the case of the New England States, which will appear as a single section, and Maryland, Delaware, and the District of Columbia, which will also be similarly grouped into a single section. The total number of these sections will be 42.

These detailed summaries by States will each contain from 8 to 12 pages of data and charts and will be issued from 10 to 20 days after the close of each month; they will thus meet the need for prompt dissemination in each State of the information they contain better than is possible under the present policy of collecting them at the central office into a single monthly publication.

The Monthly Weather Review will still be published and the Bulletin of the Mount Weather Observatory merged with it into a single publication bearing the old title: Monthly Weather Review. The new series will be devoted chiefly to papers on the atmosphere and kindred subjects and will be similar to the issues preceding July, 1909. The general climatological tables of all the regular Weather Bureau stations and the full list of charts will be published in the new Review as heretofore.

## CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given for the various sections of the climatological service of the Weather Bureau the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperature for each section, the highest

and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

## CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS, DECEMBER, 1913.

			Tempe	ratu	re (°F	.).					Precipitation (in incl	nes and	hundredths).	
Section.	average.	from al.	,•	Мо	nthly	extremes.			average.	rture from normal.	. Greatest month	ıly.	Least monthly.	
Secula.	Section ave	Departure from the normal.	Station.	Highest.	Date.	Station.	Lowest.	Date.	Section ave	Departure the norm	Station.	Amount.	Station.	Amount.
Alabama. Arizona Arkansas Californis Colorado Florida. Georgia. Hawaii [for November]. Idaho. Illinois. Indiana Iowa Kansas Kentucky Louisiana Maryland and Dela-	42.8 43.6 44.8 19.3 61.1 48.6 70.4 24.9 36.7 36.7 32.0 34.4 39.4 51.5	- 1.9 - 5.7 + 2.2 + 1.7 - 1.8 + 6.2 + 5.6 + 8.4 + 2.5	Evergreen San Simon Portland Auburn Fruita 9 stations Valdosta Mahukona  Garnet Cobden Cobden Cambridge City Leon Quenemo 2 stations 2 stations 2 stations Frostburg	84 80 77 85 61 85 85 93 56 74 69 65 69 70 90 72	1 16 1 6 12 1† 1 3† 11 1 1 1 2 1 1† 1 7	Hamilton Flagstaff (1) Pond Tamarack Fraser 2 stations Mineral Bluff Humuula Pierson 2 stations Berne Bedford Rome Alpha Grand Cane 2 stations	14 -10 -36 23 12 42 -21 9 1 -13 - 2 11 15	9 22 26 4 22 9† 9 13 17† 21† 27 21 26 9 26 28	2.70 3.34 3.33 13.51 1.65 1.06 1.07 1.04 3.56 2.67 3.20	- 1, 32 - 0, 16 - 0, 26 + 3, 01 + 1, 94 + 0, 67 - 0, 84 - 0, 36 - 1, 09 - 1, 79 - 0, 15 + 2, 70 - 1, 24 - 1, 14 - 0, 89	Pushmataha Chiarson's Mill Swain Helen Mine Frances Gainesville Clayton Honomu Sheep Hill Metropolis Vincennes Clarinda Oberlin Middlesboro Burrwood Milford	5. 76 2. 65 5. 89 34. 52 7. 08 6. 70 7. 11 48. 62 5. 59 2. 97 2. 50 4. 73 5. 49 4. 11 7. 61 3. 36	Ozark 5 stations Wynne 4 stations Delta Key West Hawkinsville Puuwaawaa Vernon Antioch Whiting 2 stations Ulysses Louisville Reserve Solomons	1. 6 0. 6 0. 3 0. 2 1. 4 0. 1 7. 0. 2 1. 2 1. 3 1. 4
UtahVirginia	48. 1 38. 3 25. 4 28. 6 28. 7 31. 3 7. 29. 5 48. 0 44. 2 22. 7 34. 5 39. 4 47. 8 47. 8 47. 2 42. 0 47. 7 24. 0 47.	$\begin{array}{c} +\ 2.3 \\ -\ 1.45 \\ -\ 4.61 \\ +\ 4.61 \\ +\ 2.44 \\ +\ 3.74 \\ -\ 1.15 \\ -\ 3.70 \\ -\ 4.15 \\ -\ 2.36 \\ -\ 2.36 \\ -\ 2.36 \\ -\ 2.5 \\ -\ $	Eloise. Long Prairie Loakesville Sublett. Chester Santee Logan Bar Harbor, Me. 2 stations. Deming Liberty. Willard Minot. 5 stations. Heavener Brookings (3) Uniontown Juncos 3 stations. 2 stations Brighton Emery Charlottesville Snohomish 2 stations Oconto Emery Charlottesville Snohomish 2 stations Oconto Eaton's Ranch	666 811 742 655 669 623 630 70 644 70 656 664 70 6566 92 77 91 61 72 63 68 63 63 64 64 66 66 66 66 66 66 66 66 66 66 66	2 11 1 2 10 11 8 5 3† 3† 2 6 6 11 1 1 2 2 3 4 6 6 11 1 6 1 1 1 1 6 1 1 1 1 1 1 1 1	Charlotte Roseau Roseau Moorhead Tarkio Bowen Broken Bow Tecoma Van Buren, Me Layton 3 stations Banners Elk Hannah Millport 2 statons Imperial Lawrenceville Cayey Bowman 2 stations Erasmus Plemons Manila Burke's Garden 2 stations Bayard Long Lake Sn a ke R iver,	-20 18 -3 -3 -29 -12 -22 -23 -11 -22 -15 -6 -21 -3 -1 -7 -7 -7 -7 -6 -4 -28 -3 0 3 -8	27 25 9 27 24 20 28 29 225 225 228 23 227 10 25 8 23 222 27 27 20 225 28 23 225 225 226 227 227 228 228 228 228 228 228 228 228	0.05 3.35 2.27 0.20 3.16 3.24 3.03 1.57 2.34 3.09 1.68 4.27 2.63 2.63 2.63 2.63 2.63 2.25 0.36 5.03 1.15 3.24 2.63 2.63 2.63 2.63 2.63 2.63 2.63 2.63	- 1. 45 - 0. 79 - 1. 0. 19 - 0. 68 + 2. 41 + 0. 45 - 0. 07 - 0. 81 + 0. 71 - 0. 81 + 0. 71 - 0. 22 - 0. 44 - 1. 16 + 3. 20 - 2. 51 - 0. 55 - 2. 73 + 0. 89 - 0. 30 - 0. 66 - 1. 78 - 1. 78 - 1. 78 - 1. 78 - 2. 51 - 0. 66 - 2. 57 - 0. 67 - 0. 66 - 2. 57 - 0. 66 - 2. 57 - 0. 67 - 0. 66 - 0. 66 - 0. 66 - 0. 66 - 0. 66 - 0. 67 - 0. 68 - 0. 68	Anderson	1. 75 0. 42 8. 70 2. 08 7. 39 5. 64 13. 44 0. 5. 28 4. 40 5. 28 15. 72 16. 80 1. 26 5. 51 17. 10 5. 51 17. 10 5. 51 17. 10 5. 51 11. 51 5. 51 11. 51 5. 51 11. 51 5. 51 11. 51 5. 51 11. 51 5. 51 6. 51 6. 51 7. 5	Ontonagan. 9 stations. Grenada. Vandalis. 6 stations. Butte. Jean. Bethlehem, N. H. Vineland. Lakewood (near). Otto. Hot Springs. 9 stations. 2 stations. Hurley. Gurdane. California. Destino. Broxton. Mitchell. Sparta. Grand Falls. Pineview. Hot Springs. Syllivan Lake. Union. Antigo. 2 stations.	T. 0.00 0.11 0.00 0.00 0.00 0.00 0.00 0.0

† Other dates also.

TABLE I .- Climatological data for United States Weather Bureau stations, December, 1913.

	Elevinstr	ratio ume	n of nts.	Pi	essure inches	in i.	Te	mpera	ture Fa	of	the	air, i	in d	legre	es	ir.	of the	ty, per	Prec	ipitati nches.	on,		1	Wind.						tenths.		end of
Districts and stations.	above sea feet.	above	above	uced to	reduced to	m nor-	+mean 2.	m nor-			um.			ım.	laily	wet thermometer	dew point.	ve humidit cent.		m nor-	0.01 or	movement,	ection.		x i m			days.			n.	ground at
	Barometer ab	Thermometer above ground.	Anen.on.eter	Station, reduced mean of 24 hours	Sea level, redu mean of 24 h	Departure from nor- mal.	Mean max	Departure from nor- mal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet the	Mean tempe dew	Mean relative	Total.		Days with 0 more.	Total move miles.	Prevailing direction.	Miles per hour.	Direction.	Date.	Clear days.	Partly cloudy	Cloudy days.	Average cloudiness,	Total snowfall	Snow on gro
New England.							33.5	+ 4.6										74	3. 15	- 0.3										6. 2		
Castport. Greenville. Portland, Me Joncord. Burlington Northfield Boston. Nantucket Block Island Narragansett Providence Hartford New Haven.	103 288 404 876 125 12 26	70 11 12 115 14 11 9 215 122	117 79 48 60 188 90 46	28. 73 29. 84 29. 65 29. 54 29. 02 29. 83 29. 95 29. 95	29. 9. 29. 9. 30. 0. 30. 0. 29. 9. 29. 9. 29. 9.	2 06 4 06 7 03 8 06 9 03 1 04 7 05 8 06 9 07 1	22. 2 31. 9 29. 3 27. 0	3 + 4.3 3 + 4.8 3 + 2.9 3 + 4.5 3 + 4.1 3 + 2.6 3 + 3.2 4 + 5.6 3 + 5.8	45 52 53 45	14 14 14 17	30 39 38 35	- 6 13 - 1 - 5 -16 18 22 22 16 18 12	29 29 28 28 19 19 12 12	15 25 21 20 15 31 34 34 29 30 28	29 29 28 32 27 34 28 22 26 27 29 28 26	27 27 22 33 36 36 36 33 31 32	23 21 20 27 33 32 28 26 26	77 67 87 69 80 74 72 72 72 67	2. 08 1. 61 2. 41 3. 0 3. 21 3. 50 4. 52 3. 46 3. 59	- 0.8 - 0.6 - 1.3 - 0.1 - 0.3 - 0.4 - 0.3 - 0.4 - 0.6 + 0.6	9 10 7 11 12 6 9 9	4, 083 9, 320 5, 330	n. nw. s. n. w. nw. nw. nw. nw.	42 33 37 30 40 55 62 	nw. w. sw. w.	24 8 8 10 8 8 8 8 8 8 8	12 8 4 6 10 9 11 15	4 7 8 7 9 8 5 6	15 16 19 18 12 14 15 10 12	5.7 6.5 7.7 7.1 5.5 6.3 6.3	7. 3 12. 2 14. 9 24. 4 0. 9 T.	20. 3. 8. 14. 
Middle Atlantic States.	07	100		00.00	20.00			+ 3.7			20			0.5		-	07	74		- 0.9				-				11	9.0	5. 8	× 0	
Albany Binghamton New York Harrisburg Philadelphia Reading Scranton Atlantic City Cape May Prenton Baltimore Washington Lynchburg Mount Weather Norfolk Richmond Wytheville  South Atlantic States	314 374 117 325 805 52 17 190 123 112 681 1,725	100 414 94 123 81 111 37 13 159 100 62 83 10	69 454 104 184 98 119 48 49 183 113 85 88 75 205 52	29. 67 29. 67 29. 93 29. 70 29. 17 29. 99 30. 05 29. 82 29. 95 29. 34 28. 18 29. 99 29. 94	30. 04 30. 06 30. 06 30. 06 30. 06 30. 06 30. 06	0	31. 6 38. 8 38. 0 40. 3 37. 8 40. 2 41. 4 38. 3 41. 4 43. 3 45. 3 45. 3 47. 2	3 + 1, 1 5 + 3, 9 5 + 4, 4 5 + 4, 5 6 + 5, 2 6 + 3, 8 6 + 4, 8 6 + 5, 2 7 + 4, 8 8 + 4,	52 58 58 56 56 52 58 57 63 66 70 58 68 68	7 3 13 13 13 13 13 3 13 3	39 46 44 47 44 42 47 48 45 48 48 53 42 52 51	18 23 16 7 20 22 19 25 24 23 17 27 23	29 28 28 28 28 28 28 28 28 8 28 12	32 32 34 31 28 33 35 31 35	24 32 27 28 23 28 35 30 23 28 29 33 34 25 28 35 33	29 33 36 34 32 36 38 34 36 35 36 32 40 37 32	25 27 27 31 29 29 31 35 30 30 30 32 26 35 32 28	79 66 68 71 72 84 73 82 77 66 70 71 73 72 76 79	1. 63 2. 40 2. 74 2. 56 3. 44 2. 16 2. 73 2. 55 2. 44 2. 58 2. 29 2. 56 1. 73 1. 68 2. 17 2. 58	- 1. 0 - 0. 8 - 1. 0 + 0. 1 - 0. 5 - 0. 4 - 1. 0 - 1. 2 - 0. 5 - 0. 9 - 0. 7 - 1. 4 - 1. 8 - 0. 8 - 1. 2	7 8 6 8 7 5 8 7 5 6 6 5 8	5, 493 5, 409 5, 782 7, 158 8, 969 4, 976 5, 319 5, 039 15, 599 9, 371	nw. nw. nw. nw. nw. nw. nw. nw. nw. nw.	28 85 30 37 39 33 29 44 54 33 40 42 84 58	nw. nw. ne. nw. sw. ne. ne. w. sw. nw. nw. nw. nw.	7 8 8 8 25 7 8 26 25 8 8 8 8 8 8 8 8 8 8	4 11 9 8 4 5 14 9 13 9 9 12 8 13	6 9 7 13 10 9 4 12 8 8 9 9	21 11 15 10 17 17 13 10 10 14 13 10	5.8 6.2 5.4 6.6 6.9 5.1 5.3 5.1 5.8 5.7 5.2 6.0 5.3	T. 0.5 T. T.	T. 1.
sheville	2, 255	70				.00		+ 2.6	1 1		50	16	10	31	34	35	31	77	2, 52	- 1.5	10	5,765		39		25	14	8	9	4.8	T.	
harlotte latteras fanteo Raleigh Vilmington columbia, S. C. uugusta avannah ackson ville	773 11 12 376 78 48 351 180 65	12 12 103 81 11 41 89 150	50 46 110 91 92 57	30, 06 29, 69 30, 02 30, 05 29, 73 29, 92	30, 0 30, 1 30, 1 30, 1 30, 1	7 06 1 04 1 03 0 03 3 04	49. 8 48. 8 45. 0 49. 6 52. 0 48. 2 48. 2	+1.0	67 72 68 72 72 72 70 69	25 7 5 6 6 5 5	55 58 53 58 59 56 57 61	23 25 27 31 24 25 30	10 9 9 10 10 9	44 39 37 41 45 40 40 46	26 19 30 23 32 35 25 26	39 46 39 43 47 42 44 48 53	35 43 33 39 44 37 41 45 50	75 83 71 76 80 72 83 80 83	2. 94 2. 14 3. 80 3. 63 2. 59 2. 93 2. 36 2. 37	+ 0.7 - 2.2 - 3.0 + 0.6 + 0.5 - 0.6 0.0 - 1.1 - 0.7 + 1.5	9 6 10 11 10 11 12 10	4,734 11,081 5,788 5,313 7,263 4,712 4,035 7,759 5,902	n. ne. w. n. ne. nw.	35 30 34 34 32 54	Ne. W. W. W. W. W. SW. W.	25 25 26 26 26 25 25 7 25 25 25	10 14 16 13 11 7 9 5 7	7 7 7 9	10 8 11 11 15 14 20 18	5. 6 4. 9 5. 0 5. 2 6. 1 5. 7 7. 1 6. 8 5. 3	T.	
Florida Peninsula.							1	+ 1.2										82	1.60	- 0.4										5. 6		
Tey West	25 23	37 39 79	72 72	30.05 30.01 30.05	30.09 30.04 30.0	04 03	67. 9 71. 2 62. 4	$\begin{array}{c} + 1.1 \\ - 0.1 \\ + 2.9 \\ + 1.1 \end{array}$	80 77 82	30 7 1	76 74 70	47 62 38	27 27 9	60 69	16 23 10 26 28	66 63 67 57	64 61 64 55	82 82 77 85	0.32 1.58 4.20	-1.6 $-1.9$ $+2.2$	4 6 9	6, 680 5, 082 10, 121 4, 948	nw. ne. ne.	22 42		25 25 25 25 25	9	16 24 11	11	4.5. 6.3. 5.1. 6.1. 5.8.		
East Gulf States.							50. 2	+ 1.1										80	2.76	- 1.8										6.8		
tlanta facon homasville ensacola nniston sirming am fobile fonteomery feridian ricksburg New Orleans	370 273 56 741 700 57 223	78 8 140 9	87 57 182 57	29.71 29.80 30.05 29.34	30. 12 30. 10 30. 11 30. 13	204 05 04 04	48. 4 54. 0 54. 8 45. 8	0 + 1.3 1 + 1.6 0 + 1.5 3 + 0.9 3 + 1.6 2 - 0.1 3 + 2.3 2 + 1.1 4 + 0.8 4 + 0.8	68 83 76 66	5 1 1 17	57 64 62 55 54 61 58 56 57	22 26 33 23 23 23 23 28 27 30	10 10 9 10 9 9 9	46 42 40	23 36 34 24 31 28 26 31 31 26 22	41 44 48 50 42 49 46 44 44 50	37 41 46 47 38 46 42 41 40 47	75 81 84 80 78 80 78 84 75 82	2.08 2.51 2.22 3.12 2.99 2.55 3.17 3.80	- 0.6 - 2.3 - 1.2 - 2.0 - 1.4 - 1.6 - 2.0 - 1.3 - 1.4 - 2.8 - 2.7	12 10 8 13 10 8 13 8	3,869 4,421 6,409 4,490 3,353	n. n. ne. se. n. nw. ne. ne. ne. ne.	46 25 30 43 25 30 34 27 24 26 30	nw. sw. w. nw. s. n. w. w.	8 7 25 24 8 25 24 25 25 25 25 25 25 25	6 7 5 6 4 7	6 8 11 11 9 12 12 6 7	18 16 16 14 15 14	7.4 6.9. 6.8. 7.0. 6.4 6.3 6.2. 6.5. 7.8 6.6.	T. T.	
West Gulf States.		9						- 0.4										80		+ 2.3		1.		-						6.6		
shreveport. Sentonville Fort Smit's Little Rock Brownsville Forpus C'risti Fort Wort's Balveston Houston Balvestine Ban Antonio Saylor	457 357 57 20 670 54 138 510 701	11 79 139 3 69 103	44 94 147 40 77 114	28. 74 29. 66 29. 78 30. 09 29. 41	30. 14 30. 16 30. 16 30. 14 30. 14	+ .01 + .02 + .03 + .03 + .03	39. 0 42. 4 44. 8 61. 4 58. 1 2 45. 6	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	59 65 68 84 77 68	1 1 1 2	48 50	17 25 27	26 26 26	33 37 39 53 53 39 51 47 42 45	22 25 24	39 41 53 42 52 44 47	36 37 50 39 50	79 80 80 82 82	3. 44 4. 79 2. 96 1. 17 1. 34 5. 42 2. 11 6. 22 10. 88 4. 47	$\begin{array}{c} -0.1 \\ +0.7 \\ +1.9 \\ -1.3 \\ \hline 0.0 \\ +4.2 \\ -1.6 \\ \hline +7.2 \\ +2.9 \\ +9.1 \end{array}$	14 13 12 7 7 7 11 7 9 10 10	5, 290 8, 386 6, 333 9, 114	e. e. n. n. nw. n. nw. nw. ne.	39 40 24 24 28	nw. w. nw. se. se. se. w.	25 7 20 7 4 4 4 24 3 6 24 24	6 6 7 4 5 10 7 6 12	3 5 5 11 11 11 9 10	16 15 12 14 15	7. 9 7. 6 7. 0	5.4 1.5 T.	

TABLE I .- Climatological data for United States Weather Bureau stations, December, 1913-Continued.

	Elevinstr				essure inche		Ten	aperat	ure Fa	of the	he a	ir, ir it.	de	gree	3	1	of the	y, per		ipitati iches.	on,		V	Vind.						tenths.		o pue
Districts and stations.	ove sea t.	above	above	ced to	reduced to	m nor-	тевп	m nor-			ım.			Im.	daily	wet thermometer.	nt.	humidit nt.		m nor-	0.01 or	movement, illes.	ection.		x i m elocit			days.				at
Desired and Statement	Barometer above level, feet.	Thermometer above	Anea.o. eter	Station, reduced to mean of 24 hours.	Sea level, redu mean of 24 h	Departure from nor- mal.	Mean max.+ min.+2.	Departure from nor- mal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	range.	Mean wet the	_	Mean relative hu	Total.	Departure from nor mal.	Days with 0 more.	Total move miles.	Prevailing direction.	Miles per hour.	Direction.	Date.	Clear days.	Partly cloudy	Cloudy days.	Average cloudiness,	SDO	Snow on ground
Ohio Valley and Tennessee.							39.1	+ 2.3										82	2.08	- 1.3										6.7		
Chattanooga.  Knoxville.  Memp is Nas'iville Lexington. Louisville. Evansville Indianapolis Terre Haute Cincinnati. Columbus. Dayton. Pittsburgh Elkins. Parkersburg.	996 399 548 989 525 431 822 575 628 824 899 842 1, 940	90 70 166 73 211 73 156 9 153 173 188 353 4	3 100 97 8 191 5 102 9 255 9 255 82 4 164 1 129 2 160 3 222 1 216 3 410 1 50	29. 58 29. 03 29. 59 29. 69 29. 25 29. 52 29. 4 29. 24 29. 15 29. 19 28. 02	30. 1 30. 1	6 .00 402 9 + .04 8 + .0; 7 + .0; 8 + .04 6 + .04 6 + .04 4 + .02 2 + .01 6 + .04 6 + .04	44. 2 42. 7 45. 0 42. 6 38. 0 39. 8 40. 4 37. 2 37. 8 39. 1 35. 5 36. 2 35. 8 34. 3	+ 1.6 + 3.0 + 1.3 + 1.5 + 1.6 + 4.6 + 2.7 + 2.7 + 3.1 + 1.8	65 63 68 67 61 63 58 61 60 59 60 54 60	2 2 1 2 3 1 2 1	42	21 28 21 16 19 22 16	8 8 8 8 8 8 8 2 8 2 8 2 8 2 8 2 8 2 8 2	34 39 35 32 34 35 32 32 29 30 30 25	28 29 21 28 32 29 27 30 30 34 29 34 32 38 31	40 38 42 38 36 37 34 35 37 33 34 33 31	34 31 33 34 30 32 30 28	78 77 82 81 86 84 81 86 79 84	3. 59 1. 69 2. 45 2. 74 1. 21 1. 62 0. 40 0. 57 1. 28 1. 13 0. 72 2. 60 3. 45		111 9 111 6 8 7 7 7 6 7 7 8 9	5, 341 6, 469 6, 656 4, 175 6, 119 5, 744 4, 664 7, 434 7, 033	ne. ne. w. sw. ne. sw. sw. w. sw. w. sw. w.	25 36 40 41 42 24 33 39 26 47 41 47 26	nw. w. nw. nw. w. nw. e. w. w. w. nw. nw.	77 25 77 77 77 66 67 88 77	9 9 10 6 8 8	10 5 3 6 7 7 6 4 9 5 6 6 6	12 17 18 19 16 16 19 20 17 19 18 21	5.8 5.6 6.6 6.1 7.2 6.7 6.6 7.2 7.1 7.0 6.9 6.8 7.6 6.5	0. 2 T. 3. 5 T. 4. 2 0. 2 2. 8 0. 4 0. 1 0. 5 0. 5 0. 7 11. 3 4. 8	T 1. T 0. 3. 1.
Lower Lake Region.  Buffalo	767	24	2 290	20 20	30.0	501		+ 4.3	1 1	1	39	10	97	28	27	32	29	80 83		- 1.3 - 2.0		15, 260	CTW.	50	sw.	12		9	18	7.4	0.4	
Canton. Oswego. Rochester. Syracuse Erie. Cleveland Sandusky Toledo. Fort Wayne.	448 335 523 597 714 762 628 853	10 70 80 90 190 60 200 110	61 61 61 61 61 61 61 61 61 61	29. 52 29. 65 29. 47 29. 38 29. 29 29. 27 29. 42 29. 43 29. 19	30.0 30.0 30.0 30.0 30.1 30.1 30.1	303	27. 0 32. 8 33. 0 32. 0 35. 0 35. 4 35. 2 35. 4 34. 8	+ 4.3 + 3.3 + 4.3 + 4.3 + 4.5 + 4.5 + 4.8	52 55 55 56 53 53 53 57 59 59 57	7 7 7 7 2 2 2 2 2		- 6 9 6 8	27 27 27 27	20 27 27 23 30 30 30 29 29 29	31 28 30 27	31 30 32 33 32 32 32 32 32	28 26 26 29 29 29 29 29	82 78 79 77 79 81 80 82 82	2, 38 1, 88 2, 49 2, 47 1, 07 1, 38 0, 83 0, 95 0, 66 0, 99	- 1. 2 - 1. 7 - 0. 4 - 0. 2 - 2. 0 - 1. 2 - 1. 5 - 1. 4	14 11 11 10 9 12 7 6 7	7, 853 9, 224 7, 509 8, 728 8, 605 10, 174 6, 284 10, 952 6, 600 9, 829	SW. S. SW. SW. SW. SW. SW.	40 43 39 45 40 60 40 43 34	e. ne. w. s. nw. nw. nw. ne. nw. nw.	26 7 7 7 8 8 8 8 25 7	6 2 3 5 3 5 5 7	6 7 9 6 5 3 4 3 5	19 22 19 20 23 23 22 21 17	7.3 8.1 7.7 7.3 7.7 7.8 7.7 6.9 6.6 7.5	18. 4 7. 8 14. 4 15. 9 5. 7 5. 9 3. 7 1. 9	6. 4. 6. 5. 1. T
Upper Lake Region.  Alpena	609	13	02	90 99	30 0	7 + .05		+ 7.5		2	37	8	97	25	21	29	26	81 82		-1.6	1	8,745	nw	46	nw.	7		15	10	6. 4	5.1	T
Escanaba Grand Haven Grand Rapids Houghton Lansing Ludington Marquette Port Huron Saginaw Sault Ste. Marie Chicago Green Bay Milwaukee Duluth	612 632 707 684 878 637 734 638 641 614 823 617	5: 70 60 11 60 71 70 49 11 140 100	60 1 92 1 92 1 62 1 62 1 62 1 62 1 12 1 82 1 61 310 144	29, 40 29, 41 29, 33 29, 14 29, 39 29, 27 29, 37 29, 38 29, 35 29, 24 29, 42	39, 00 30, 11 39, 10 39, 10 39, 10 39, 10 39, 11 39, 10 39, 11	$     \begin{array}{r}       0 + 000 \\       0 + 000 \\       2 + 007 \\       2 + 007 \\       8 + 000 \\       0 - 00 \\       0 - 00 \\       0 + 000 \\     $	33. 0 35. 0 35. 1 29. 6 31. 8 34. 4 31. 6 33. 0 32. 2 27. 4 37. 4 31. 4	+ 8.4 + 4.9 + 6.3 + 8.7 + 5.0 + 8.7 + 5.7	56 62 61 57 55 57 57 55 52 44 57 52	4 1 1 11 1 1 13 12 2 5 4 5	36 40 41 33 39 40 38 39 39 34 42 37	8 10 11 8 - 5 11 11 16 16 - 1 - 2 18	21 27 27 21 27 27 21 28 27 26 7 21 7	24 30 30 24 25 29 26 27 26 21 32 25	21 22 26 26 32 27 26 24 26 25 27 29 22 25	27 33 33 33 29 32 27 30 30 26 34 28 31 23	23 30 30 27 28 22 28 28 23 30 25 27	78 81 84 88 78 72 84 87 82 76 79 76	0. 31 0. 51 0. 31 0. 33 0. 55 0. 54 0. 64 0. 69 0. 45 0. 46 0. 08	- 1.4 - 2.0 - 2.2 - 2.2 - 1.5 - 1.6 - 1.5 - 1.6 - 1.6 - 1.6 - 1.6 - 1.6	577744776666666666666666666666666666666	6, 582 9, 023 4, 305 6, 972 4, 472 8, 440 7, 773 8, 885 7, 149 7, 737 8, 665 8, 348	SW. SW. W. SW. SW. NW. SW. SW. SW. SW. SW. NW. SW. SW. SW.	37 47 26 39 26 42 42 39 33 38 38 44	ne. nw. nw. nw. nw. nw. nw. nw. nw. nw. nw	257777788877888778447777777	12 10 6 8 5 10 11 5 6 9 11 12	5 8 6 7 5 5 10 8 6 4 7	14 16 17 17 19 16 15 16 18 19 18	5. 5 6. 3 6. 9 6. 6 7. 2 6. 4 6. 1 7. 0 7. 2 7. 4 6. 6 6. 2 5. 5 5. 2	2. 7 4. 9 2. 3 4. 2 4. 8 1. 8 8. 8 3. 8 5. 0 3. 5 2. 7 0. 4 0. 2	0. T 1. 2. 1. 3. 0.
North Dakota.								+10.5										78		- 0.5	1									3. 8		
Moorhead	1,674	1	57	28, 36 28, 50	30. 2	1 + .12 2 + .14 4 + .08 5 + .09	24. 6 21. 1 22. 7	+ 9.6 +13.1 + 9.1	56 50 50	11	36 31	_13	20 25	14 12	37 29	18	16 15	76 82	0, 28 0, 06 T.	- 0.3 - 0.3 - 0.3 - 0.7	1 0	5, 525 4, 896 6, 907 4, 062	nw.	33 36	nw. n. nw. w.	6	16 16	8	7	2.9 4.1 4.1 4.2	T. 1.3 0.2 T.	T
River.			-					+ 8.0										83		- 1.1										6.1		
Minneapolis. St. Paul. La Crosse Madison. Charles City. Davenport. Des Moines. Dubuque Keokuk Cairo. Peoria. Springfield, Ill Hannibal St. Louis.	837 714 974 1,015 606 861 698 614 356 609 644 534	201 701 107 88 88 66 88 1107	1 480 78 0 78 1 79 1 93 1 93 1 93 1 45 0 91 1 109	29, 22 29, 37 29, 08 29, 06 29, 50 29, 23 29, 41 29, 57 29, 77 29, 49 29, 46 29, 58	30. 1 30. 1 30. 1 30. 1 30. 1 30. 1 30. 1 30. 1 30. 1	6 + .08 7 + .09 7 + .09 8 + .08 8 + .08 7 + .06 9 + .09 9 + .09 6 + .01 8 + .07 7 + .05 8 + .06 7 + .04	31. 4 32. 0 33. 5 35. 2 34. 0 34. 2 37. ( 41. 0 35. 7 37. 8 38. 6	+10.9 + 8.6 + 9.3 +11.3 + 8.0 + 8.3 + 7.6 + 7.6 + 7.3	56 54 53 55 51 65 58 58 61 61	11 12 12 11 12 12 12 12 11 1 16 1	39	7 11 13 9 16 6 15 15 24 16 21 18	26 21 21 21 21 21 21 21 21 21 8 22 8	24 23 24 23 22 29 21 27 31 33 30 33 23 36	28 27 23 25 22 26 26 23 25 27 25	23 29 27 33 31 31 34 38 33 35	25 31 28 28 32 35 32 32	81 89 87 83 83 85 80 90	0. 02 0. 13 0. 33 0. 30 0. 54 1. 05 0. 34 1. 35 0. 84 0. 74 0. 77 1. 11	- 0.6 - 1.6 - 1.6 - 1.6 - 1.6 - 1.6 - 1.6 - 1.6 - 1.6 - 1.6 - 1.6 - 0.8	0 1 2 3 4 2 3 3 6 3 6 5 6 5 6 6 7 7 5 7 9	7, 281 7, 390 6, 3, 297 8, 6, 713 3, 717 4, 292 4, 204 3, 605 4, 323 5, 112 6, 3, 952 7, 5, 010 6, 705	n. nw. sw. nw. sw. nw. nw. nw. nw. nw. nw. nw. ne.	48 26 44 26 30 25 29 28 37 28 36 34	nw. n. nw. nw. nw. nw. nw. nw. nw. nw. n	77 77 77 77 77 77 77 77 77 77 77	10 10 9 10 12 8	6 8 8 8 4 8 6 7 1 0 3	14 14 13 13 18 13 16 20 27 18 16	5. 6 6. 6 5. 8 6. 5 6. 6 6. 6 6. 4	T. 0.3 T. 0.6 2.7 1.5 T. 5.0 1.8 3.0	T T 0. T 1. 1. 0. 0. 0.
Missouri Valley.				07.7				+ 6.8	1									82		+ 0.5	1									5.5		
Columbia, Mo. Kansas City St. Joseph. Springfield, Mo. Jola. Topeka Lincoln. Omaha. Valentine Sloux City Huron. Plerre. Yankton.	963 967 1,324 984 983 1,189 1,105 2,598 1,135 1,306 1,572	16 1 9 1 8 1 1 1 1 4	1 181 49 1 104 1 50 1 101 84 1 84 1 164 6 67	29. 11 29. 10 28. 73 29. 10 28. 87 28. 97 27. 39 28. 94 28. 77	30. 1 30. 1 30. 1 30. 1 30. 2 30. 2 30. 2 30. 2	8 + .06 $ 8 + .06 $ $ 7 + .04 $ $ 8 + .06 $ $ 9 + .07 $ $ 9 + .09 $ $ 2 + .12 $ $ 0 + .08 $ $ 2 + .14 $ $ 0 + .09$	37. 8 35. 8 38. 4 37. 6 36. 0 33. 5 34. 2 29. 3 31. 0 26. 6	+ 6.3 + 2 9 + 5.1 + 4.9 + 6.6 + 7.1 + 4.8 + 10.9	57 55 56 58 58 54 55 57 57	1 3 1 3 11 19 11	42 41 41 41 39 38	15 11 20 10 9 6 8 2 3	21 26 26 26 26 26 25 21 25 25	32 30 33 32 30 26 28 17 23 15 19 21	25 21 38 27 38	34 36 30 31 23 27 22 24	32 34 29 27 20 24 18 19	87 86 90 80 79 82 79	3. 3£ 2. 8( 2. 71 3. 9£ 3. 5£ 4. 03 2. 19 0. 8£ 0. 60 0. 05 0. 43	- 0.3 + 2.0 - 0.0 + 3.0 + 2.5 + 3.0 + 1.3 + 0.3 - 0.1 - 0.5	12 9 9 9 9 10 17 12 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	6,469 4,680 5,954 4,076 5,109 5,680 4,998 5,351 6,485	SW. 0. SO. SW. S. S. W. S.	42 34 40 28 33 41 43 31 48 37	nw. nw. n.	6	8 11 7 7 9 16	2 2 4 3 3 3 3 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6	21 18 20 21 19 11 11 11 9	6.3 7.1 7.3 6.6	4.0 1.7 8.2 5.7 4.3 1.1 1.0 0.7 T.	1. 0. 0. 0. 1. T

TABLE I .- Climatological data for United States Weather Bureau stations, December, 1913-Continued.

	Elevinstr	ratio ume			ressure inches		Ter	mperat	ure Fa	of t	he a	ir, ir it.	de	gree	8	- 1	of the	ty, per	Prec	pitati iches.	on,		V	Vind.						tenths.		end of
Districts and stations.	above sea feet.	rabove	above	leed to	reduced to	m nor-	max.+mean min.+2.	from nor-			um.			um.	dal.y	wet thermometer.	dew poin	relative humidity, per cent		om nor-	0.01 or	movement, miles.	rection.		x i m relocit			y days.		diness, te		ground at e
	Barometer abovel, feet.	Thermometer above ground.	Anemon eter ground.	Station, reduced t mean of 24 hours.	Sea level, rech mean of 24 h	Departure from normal.	Mean max min.+2	Departure from mal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest Crange.	Mean wet the	Mean tempe dew	Mean relative	Total.	Departure from nor- mal.	Days with (	Total moving	Prevailing direction.	Miles per hour.	Direction.	Date.	Clear days.	Partly cloudy	Cloudy days.	Average cloudiness,	Sno	Snow on gro
Northern Slope.							23. 8	+ 0.1										76	0. 81	0. (										4.4		
Havre Heiena Kalispell Miles City Rapid City Cheyenne Lander Sheridan Yellowstone Park North Platte	2,962 2,371 3,234 6,088 5,372 3,790 6,200	11 26 46 58 60 10	114 34 48 50 6 6 6 6 6 6 6 6 6 6	25. 86 27. 06 27. 57 28. 68 24. 00	30. 23 30. 23 30. 23 30. 23 30. 24	3 + .13 3 + .16 2 + .12 3 + .14 4 + .16 4 + .16	24. 2 24. 8 27. 7 31. 3 22. 0 10. 6 24. 4 21. 0 28. 6	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	46 44 55 59 45 46 56 41 51	15 7 9 10 31	30 40 42 32 32	- 6 5 11 2 4 0 -21 - 5 - 2 5	21 25 25 25 20 22	16 19 16 20 12	40 25 24 40 32 33 51 44 30 33	20 21 23 22 24 19 7 18 17 24	17 20 17 18 14 1 14 12	74 67 73 69 78 71 85	0. 11 0. 48 0. 02 0. 29 2. 00 1. 05 0. 12 0. 25 3. 09	- 0.6 - 0.3 - 1.6 - 0.6 + 1.5 + 0.6 + 2.6	7 2 4 7 5 2 4 7 7 7 4 4 4 4 4 8 8 8		S. nw. S. w. nw. sw. se. s.	38 23 17 30 56 48 25 31	w. n. w. sw.	7 31 31 15 6 31 31 6 31 6	15 5 25 18 9	7 6 5 12	9 19 0 8 10 8	3.8 4.3 7.6 1.7 3.9 5.2 4.8 4.1 3.9 5.0	0.1 3.1 21.4	0. 3. 8.
Middle Slope.	5, 291	126	172	24, 76	30. 2	+ . 17		+ 1.5		31	34	0	21	12	37	19	13	68		+ 2.1		6,393	8.	44	n.	8	17	8	6	5. 6	57.4	17
Pueblo	4, 685 1, 398 2, 509 1, 358	80 42 11 139	86 50 51	25. 33 28. 66 27. 48	30. 22 30. 18 30. 16	$\frac{2}{3} + .07$	22. 1 35. 6 32. 6 35. 4 39. 4	$\begin{vmatrix} -9.6 \\ +5.5 \\ +2.0 \\ +1.2 \\ +0.8 \end{vmatrix}$	54 57 56 59	31 3 11	35	- 5 8 11	21 25 25 26	10 28 26	41 24 33 21 25	18 32 30 34 36	14 30 26 32	77 86 80 90 86	1. 35 3. 91 1. 88 3. 93 3. 38	+ 0.9 + 3.4 + 1.3 + 3.1 + 1.6	8 10 13 13 11 12	3,503 3,728	nw. s. nw.	27 23 38 40 46	nw. n. nw. nw.	5 6 6 20 7	11 9 13 7	13 8	14 15 19	6.8	2.1 2.7 4.9	T
Southern Slope,	1.738	10	52	28, 29	30. 14	+ . 03	43. 4	- 2.4 - 1.6	70	2	52	24	29	35	27	39	36	78		+ 0.1		6,087	50.	30	S.	4	10	9	12	5. 1	0. 1	
Amarillo	3,676 944	10 8 73	49 57 85	29.11	30. 12	2 + .04 2 + .02 2 + .05	33. 2 51. 6 37. 0	2 - 3.2 - 0.8 - 4.2	54 78 60	11 2	42 60	32	23	25	35	30		82 67 65	1.72 0.88	+ 2.0 + 0.2 + 0.3	8 6	6,945 4,762 4,847	n. se.	37 42	ne. nw. ne.	7 24 6	17 13 9	9 6 7 13	8 11 9	4. 5 5. 1 5. 2 3. 8	12.1	
l Paso	3,762	110	133	25. 23	30. 07	+ .04	41.8	- 3.0	63	3	52	25 6	22	32	29	35	25	55	0.76	+ 0.2	3		nw.		w.	5	16	11	4	3.5		
anta Felagstaffhoenixumauna	6,907 1,108 141	76	57 81	23.89	30.06	+ .02	50. 7	- 3.9 - 1.2 - 2.1 - 6.1	71	14	62	30	2 5	18 40 40 24	32 33 38 41	21 44 44 31	33	73 62 50 86	0.00	0.0 - 0.3 - 0.4	6	3,315 3,437 3,698	θ. n.	20 20	e. n. nw.	7 28 5		17 8 3 8		4. 4 4. 0 1. 7 5. 4		1
Middle Plateau.								- 2.9										77	1. 31	+ 0.2	1									5. 2		
teno Conopah. Vinnemucca fodena alt Lake City Durango irand Junction	6,090 4,344 5,479 4,360 6,546	12 18 10 147 18	20 56 43 189 56	24. 65 25. 70	30, 18 30, 20 30, 16 30, 18	+ .02 + .04 + .03	28. 9 27. 4 24. 9 30. 6	+ 0.1 - 3.3 - 6.8 - 1.5 - 3.2	46 54 49 48	9 31 11 31	34 39 33 37		21 27 21 21	24 24 16 14 24		29 26 24 22 28	21 17	73 81 75 78	0, 29 1, 84 0, 54 1, 35		9 4	3,037 6,573 4,522 5,597 3,853 2,516	se. ne. w. nw.	34 40 29 42	sw. se. sw. w. s.	31 31 22 31	12 13 14			5. 5 5. 7 5. 6 4. 9 4. 5		1. 1. 4.
Northern Plateau.	0 471	46		00.55	00.0	. 00		- 2.7			-		01	**	00	0.5	21	83		- 0.6		. 201		-			10		-	6. 8		
Baker	2,739 757 4,477 1,929	78 40 46 101	83 48 54 110	27, 31 29, 33 25, 57 28, 09	30, 28 30, 22 30, 28 30, 21	$\begin{array}{c} + .03 \\ + .09 \\ + .07 \\ + .13 \end{array}$	28. 9 33. 4 23. 7 31. 2	- 0.3 - 3.3 - 4.1 - 4.7 + 0.4 - 4.4	50 50 45 47	31 31 10	37 40 33 38	8 3 15 - 8 15 15 17	24 21 21 21	19 21 27 15 27 27	23 33 21 31 17 24	30	23	82 85	2. 40 0. 75 0. 84 0. 93	- 0.4 + 0.7 - 0.8 - 0.6 - 1.7 - 1.1	10 7 8 8 11	4,721 2,931 1,999 4,183 2,837 2,663	nw. e. se. ne.	29 17 23	s. se. ne. s. sw.	31 17 31 31 31 30	11 7 4	6	15		19 9	2 4. 0 T 2 2.
N. Pac. Coast Region.	-44		-				1	+ 0.5										- 1	3, 65											7.7		
North Head. Port Crescent Seattle. Pacoma. Patoosh Island. Portland, Oreg. Roseburg.	211 259 125 213 83 153 510	215 113	53 250 120	29, 71 29, 93 29, 82	30. 07	+.02 $+.06$ $+.06$	39.8 42.4	+ 0.8 + 1.5 + 1.2 - 0.3 + 1.3 - 0.6 - 0.4	50 55	27 12	45 47	36 23 23 25 33 30 30	24 21 21 25 19	42 35 38 35 42 37 38	12 16 18 22 11 14 22	41 40 43 38 40	39 39 41 35	83 94 88 80	6, 25 1, 77 2, 61 3, 00 6, 05 3, 48 2, 37	- 1.2 - 5.1 - 3.6 - 4.3 - 8.4 - 3.6	1 18 1 12 1 15 1 15 1 17 1 13	13, 562 3, 945 4, 993 2, 710 15, 842 4, 533 1, 802	se. se. sw.	20 43 20 62 29	se. ne. sw. sw. e. e.	27 20 6 13 21 6 10	4 0 1 0 2 6 0	10 11 7 11 6 20	23 21 19 24 18 19 11	7.7 8.5 7.8 8.7 7.4 7.2 6.8	T. T. T. T.	***
M. Pac. Coast Region.							1	- 1.1										84	60. 8	+ 1.	7									6, 3		
Eureka  dount Tamalpais  Point Reyes Light  Red Bluff  acramento  an Francisco  an Jose	62 2,375 490 332 69 155 141	73 11 7 50 108 200 12	89 18 18 56 117 204 110	29, 99 27, 58 29, 52 29, 75 30, 04 29, 93 29, 96	30, 03 30, 04 30, 12 30, 12 30, 10 30, 10	06 03 02 02 02	48. 4 43. 3 50. 2 45. 3 45. 7 50. 6 48. 6	+ 0.4 - 4.3 - 0.4 - 1.1 - 0.6 - 0.3 - 1.3	00	0	48 54 52 52 55	36 31 40 31 30 41 31	20	42 39 47 38 40 46 40	27 18 19 28 23 17 32	46 40 42 43 48	37 39 41	83 84	6, 35	+ 0.3 + 2.4 + 5.3 + 0.9 + 1.3 0.0	14	5, 265 14, 807 15, 352 3, 463 6, 184 5, 037 4, 876	se. nw. se. n.	70 70 32 43 42	S.		7 8 11	11	17	6.0	T.	
S. Pac. Coast Region.							5. 20	- 1.0										74	2. 41											5.5		
resnoos Angelesan Diegoan Louis Obispo	327 338 87 201	159 62	191	29, 73	30, 10	+ .03	55. 4	+ 0.1 - 1.1 - 0.3 - 2.6	78	9	64	42 43	9 5 5 4	39 47 48 41	33 27 22 37	43 48 49 46	40 41 45 42	65 74	1. 53 1. 66 0. 72 5. 73	- 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	1 6	4,385	ne. nw.	23 20 20 22	ne.	22	6 10 18 10	11	10	6.8 5.3 3.9 6.1		
West Indies.				20 2																							-					
Panama.	82	8	54	29, 91	30, 00	+ . 03	75.0		82	25	80	61	1	70	16	••••	****		4. 00	- 2.	21	7,290	0.	35	ne.	28	11	15	5	4.7	****	
Ancon	92 404 10	5	0		29. 80		78.5		88	24		63 63	5	71 71 76	21 19 13	74 73 76	73 73 74	89 94 84	1.50	+ 0.1	9 14	5,547 5,820 8,756	nw.	23	nw, nw,	10	13 7	16 12 14	12	4.3 6.0 5.2		

Table II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during December, 1913, at all stations furnished with self-registering gages.

		Total d	luration.	ion.	Excessi	ive rate.	before e rate		Depth	as of p	recipita	ation (	in inc	hes) o	during	g peri	ods of	time	indica	ted.	
Stations.	Date.	From-	То-	'fotal amount or precipitation.	Began—	Ended—	Amount be excessive began.	5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	12 mis
oilene, Tex	4			0.83														. 62			
bany, N. Y	25-26 6-7			0.86														(*)			
arillo, Tex	4			1.10														(*)			
niston, Ala	1			0.57														. 39			
neville, N. C	1			0.78														.37			
anta, Gaantic City, N. J	23	8.00 p. m.	D. N. p. m.	0.78	8.36 p. m.	8.44 p. m.	. 22	. 31	. 50												
gusta, Ga	29 21-22			1.02				*****										.19			
timore, Md	25			0.28							*****				*****	100000		.39			
tonville, Ark	-5	**********		1.49														. 27			
ghamton, N. Y	23			0.54										100000		100000		.12			
mingham, Ala marck, N. Dak	1-2			0.81											****	00000	00000	district.			
ck Island, R. I	26			0 56	**********													. 40			
se, Idaho	17-18 26			0 80														. 14			
ton, Mass falo, N. Y	23			0.51														.06			
ington. Vt.	23			0 52														(*)			
o, Illton, N. Yrles City, Iowa	22 7-8			0.31	**********													(*)			
rles City, Iowa	6			0.80														.07			
rleston, S. Crlotte, N. C	25			1 29														.27			
lotte, N. C	23																	. 36			
tanooga, Tenn renne, Wyoago, Ill	4-5		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1.35														(*)			
ago, Ill	23			0.29														(*)			
innati, Ohio	23			0.32														.18			
eland, Ohio mbia, Mo	5			0.13														. 16			
mbia, S. C	29			0. 98														. 26			
mbus, Ohio	23			0.29														(*)			
cord, N. Hcordia, Kans	7 5			1.03														.24			
us Christi, Tex	12			0. 49											0000			. 33			
enport, Iowa	23			0.24									10000	100000				(*)			
ton, Ohio Rio, Tex	20-21		4.30 a. m.	0.21	1.47 a. m.	2.03 a. m.	07	. 18	.37	01	.82		100000	1				.11			
ver, Colo	4-5		4.30 a. III.	2.29		2.03 a. III.				.01	.02							(*)			-1-
Moines, Iowa	6	***********		0.70														.10			
oit, Michils Lake, N. Dak	23	***********		0.42									100000					(*)			
ge City, Kans	4-5			0.70														(*)			
none Iowa	6			0.33										1			00000	. 15			
th, Minn	26-27			0.16		**********							1	1				(#)			
port, Me	7			1.26	*********								JAKKER			*****	****	.27			
ns, W. Va	7			1. 12														. 35			
aso, Tex	15-16			0.69														. 12	0.0000		
, Paanaba, Mich	7			0. 231		*******												(*)			
elca, Cal	12			0.82														. 35		****	
nsville, Indstaff, Ariz	. 6			0.74														. 46			
Smith, Ark	5			1.78														. 47			
Wayne, Ind	23			0.31														(*)			
Worth, Texno, Cal.	20			2.53														.74			
eston, Tex	13		************	1.02										*****				. 47			
d Haven, Mich	7			0.35														(*)			
nd Junction, Colo nd Rapids, Mich	7-8			0.16														(*)		***	
n Bay, Wis	6-7			0. 15														(*)			
nibal, Mo	20	**********		0.41														. 11		****	
risburg, Pa	25 22			0.56														. 17			* *
eras, N. C	25			1.24										1				. 48			
re, Mont	25			0.02														(*)			
na, Montghton, Mich	22-23	**********		0.11	1		1											(*)			* *
ston, Tex	f 13	6.25 a. m.	1.15 p. m.	1.38	9,49 a. m.	10.37 a. m.	. 26	.08	.17	. 29	. 45	. 65	.71	.76	.82	. 96	. 99		1		
n, S. Dak	24	8,05 a, m.	2.35 p. m.	1.27	10.31 a. m.	10.56 a. m.	. 32	, 10	.27	.41	. 55	. 67						/43			0
pendence, Cal	22	********	**********	0.14	***********													(*)			1
anapolis, Ind	23			0. 14														.08			
Kans. sonville, Fla	5			1.66																	0 1
spell, Mont.	25 31			1.23 0.24														. 34			
sas City, Mo	5			1.65														25			
kuk, Iowa	5-6	**********	*********	0.55														(*)			
West, Fla	25 6		***********	0.13																	
xville, Tenn rosse, Wis ler, Wyo	6		***********	0.11														(5 m)			
der, Wvo	18-19			0.46														. (*)			
sing, Michiston, Idaho	23			0.35	***********																
ngton, Ky	25		**********	0.20														. 10			
oln, Nebr	4-5			1.84														19			
le Rock, Ark Angeles, Cal	22			0.40														24			
sville, Ky.	22 6			0.74																	
sville, Ky	6-7			0.39														. (*)			
chburg, Va	25			0.81														20			
on, Galison, Wis	24	*********	**********	0.20														26			
quette, Mich	7			0.24	**********													. (*)			
nphis, Tennidian, Miss	22	**********		0.44		**********												26			
	22			1.31														42			

Table II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during December, 1913, at all stations furnished with self-registering gages—Continued.

		Total di	ration.	unt of tion.	Excessi	ive rate.	before rate		Depti	hs of p	recipita	tion (	in inc	hes)	during	g perio	ods of	time	indics	ted.	
Stations.	Date.	From-	То-	Total amount or precipitation.	Began—	Ended—	Amount before excessive rate began.	5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	12 mi
ilwaukee, Wis	6			0.03														.01			
inneapolis, Minn	1			0.05														(*)			
obile, Ala	24			0.90														.57	*****		
odena, Utah	24			0.61														.46			
ontgomery, Alaoorhead, Minn	1			0.02														(*)			
ount Tamalpais, Cal	22			1.12									*****			****	00000	.34			
ount Weather, Va antucket, Mass	25-26 25			0.70			1-0-0						*****					.25			
ashville, Tenn	25																	.31			
aw Haven Conn	23			1.45														.36			
ew Orleans, Laew York, N. Y	24 23								*****				*****		1	*****		.45			
orfolk. Va	23			0.54														.22			1
orfolk, Vaorthfield, Vtorth Head, Wash	23-24			0.85														(*)			
orth Head, Wash	27			0.81									*****				****	.33	122		
orth Platte, Nebr				0.69							*****		*****	*****			*****	.46		1	
naha. Nebr	5-6			1.111														(*)		1000	
wego, N. Y	25-26	8,55 p. m.	11 20 0 20	6,93		2 07 0 20	.29		71	75	70	01		04	00	*****		(*)			
destine, Tex	{ 3 5	11.25 p. m.	11.30 a. m. 5.20 a. m.	0.93	2.27 a. m. 1.29 a. m.	3.07 a. m. 1.45 a. m.	.04	.53	.71	.75	.79	.81	.85	.94	.99			*****			
rkersburg, W. Va	23			0.80														.34			
nsacola, Fla	24			0.71														.54			
oria, IIIiiadelphia, Pa	20 23			0.29				*****			*****							(*)		*****	
oenix, Ariz																122000		.07		****	
erre, S. Dak	1-2			0.25														(*)			
ttsburgh, Pa	6-7															****	*****	.22		100000	
catello, Idahoint Reyes Light, Cal	21												*****				*****	(*)		1000	
rt Huron, Mich	6-7			0.37														(*)			
rtland, Me rtland, Oreg	24																	.34			
rtland, Oreg	24																	.13			
ovidence, R. I	3-4			0.91									*****	*****	*****			(*)			
leigh, N. C	25			1.24														.41			
pid City, S. Dak	1-2					*********										*****	1	(*)			
ading, Pad Bluff, Cal	23			0.87							*****						*****	.33			
no. Nev	31	***********									******							(*)			
chmond Va	23			0.48								*****						.23			
ochester, N. Yoseburg, Oregoswell, N. Mex	25-26 31			1.12													1	(*)			-
swell N Mex	15-16			0.53								*****						.15			-1
cramento, Cal	30			1.32														.31	1		-1
ginaw, Mich	23-24			0.33														(*)			
Joseph, Mo	25			0.64	1			1										.21	1		-
Paul Minn	1			0.02		**********						*****	*****	*****		*****	*****	(%)			
lt Lake City, Utah	17-18			0.63														(*)			
n Antonio, Tex	3-4		11.30 a. m.	2.16		1.32 a. m.		. 22	.44	. 59	. 71										-1
n Diego, Cal	22 16		**********	0.34								*****	*****				*****	.27			
lt Lake City, Utah In Antonio, Tex In Diego, Cal Ind Key, Fla Indusky, Ohio	23	1		0, 33														(*)			
at Francisco, Cat.	8-60																	. 34			
n Jose, Cal n Luis Obispo, Cal	12 22																	.27			
nta Fe, N. Mex	4			0.24				*****	*****				*****			*****		(*)		10000	
ult Ste. Marie, Mich	6-7			0, 17														(*)			
vannah, Ga	25-26			0. 52				*****					****	****				.41	****		
ranton, Pa	31			1.15				*****	*****	*****								(*)	****		
eridan, Wyo	1			0.06														(*)			
reveport, La	. 27			1.33														. 31			
ux City, Iowa okane, Wash ringfield, Ill	5-6 30-31	**********	**********	0.48	**********			*****	*****			*****		****				(*)			
ringfield, Ill	22-23		***********	0.45				******			******					*****		(*)	****		- 0
ringfield, Mo	. 5			1.40														(*)			
racuse, N. Y	25-26		**********	1.50														. (*)			
ringfield, Moracuse, N. Ycoma, Washmpa, Fla	22-23	1.30 p. m	D. N. a. m.	0.76	9.19p. m.	9.45 p. m.	.58	.10	. 26	.41	. 60	.75	.79				*****	13	****		
toosh Island, Wash	21			0.44				. 10	. 20			. 10						. 26			1
ylor, Tex	! 2-3	2.54 p. m.	6.30 a. m.	1.99	4.32 p. m.	5.18 p. m.		. 08	. 11	.27	. 35	. 47	. 57			1.23					
re Haute, Ind	3-4	7.28 a. m.	10.24 a. m.	6, 69	3.19 p. m.		1.57	.09	. 16	.21		. 36		. 51		. 78	.87	1.02	1. 26		
omasville, Ga	. 7			0.57														33			
ledo, Ohio	. 23			0, 51														11			
nopah, Nev	21-22			0.12														. (*)			
peka, Kanslentine, Nebr	1																	28	****		
cksburg, Missalla Walla, Wash	. 5			0.50														. 16			
alla Walla, Wash	. 25			0.27														(*)			-
ashington, D. C	. 25																	36			
ichita, Kansilliston, N. Dak	2																	T.			
ilmington, N. C	. 2		**********															. 46			
innemuces. Nev	30-31			0.79	·													(*)	0000		
ytheville, Vaankton, S. Dakellowstone Park, Wyo.	. 25																	. (*)			
llowetone Park Wvo	2-3			0.16														*	****		
																					0 4

<sup>\*</sup> Self-register not working.

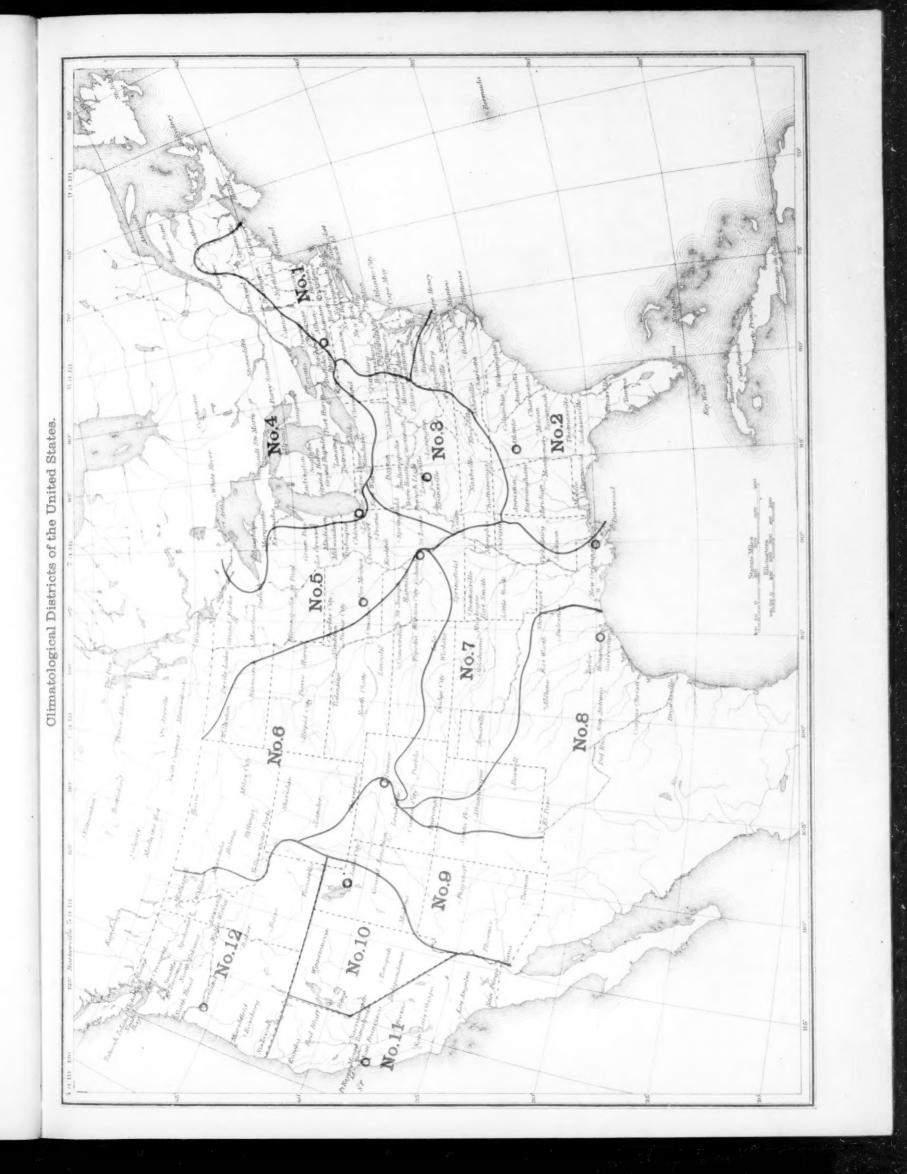
<sup>†</sup> Record partly estimated.

<sup>‡</sup> No precipitation occurred during month.

Climatological Districts of the United States.

TABLE III .- Data furnished by the Canadian Meteorological Service, December, 1913.

- The state of the	Pre	sure in inc	ches.			Temper	ature.			· P	recipitatio	n.
Districts and stations.	Station reduced to mean of 24 hours.	Sea level reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. +2.	Departure from normal.	Mean maxi- mum.	Mean mini- mum.	Highest.	Lowest.	Total.	Departure from normal.	Total snowfall.
St. Johns, N. F. Sydney, C. B. I. Halifax, N. S. Yarmouth, N. S. Charlottetown, P. E. I. Charlottetown, N. B. Father Point, Que. Quebec, Que. Montresl, Que. Stonecliffe, Ont. Ottawa, Ont. Kingston, Ont. Toronto, Ont. Toronto, Ont. Port Stanley, Ont. Southampton, Ont. Port Arthur, Ont. Port Arthur, Out. Winipeg, Man. Minnedosa, Man. Qu'Appelle, Sask. Medicine Hat, Alberta. Swift Current. Sask. Calgary, Alberta. Banff, Alberta. Banff, Alberta. Erimonton, Alberta. Erimonton, Alberta. Erimonton, Alberta. Bartielford, Sask. Kamloops, B. C. Victoria, B. C. Barkerville, B. C. Barkerville, B. C. Hamilton, Bermuda.	29. 59 29. 77 29. 83 29. 88 29. 90 29. 61 29. 77 29. 73 29. 63 28. 65 29. 30 29. 34 29. 33 29. 34 29. 35 29. 37 77. 73 27. 74 27. 75 27.  29, 73 29, 83 29, 88 29, 90 29, 88 29, 91 29, 93 20, 93 30, 03 30, 03 30, 01 30, 07 30, 15 30, 16 30, 06 20, 99 30, 19 29, 99 30, 00 30, 05 30, 01 29, 93 30, 01 29, 93 30, 09	100608080803020601 + .0601 + .0601 + .0102 + .04 + .0102 + .04 + .0102 + .04 + .0102 + .04 + .0102 + .04 + .0102 + .060106 + .08 + .07 + .05 + .060101 + .06 + .17 + .04 + .05010106060106	30.0 6 30.6 30.6 30.6 30.6 30.6 30.6 30.	+ 1.3 + 3.4 + 3.0 + 3.7 + 5.4 + 6.5 + 8.1 + 7.3 + 7.4 + 7.6 + 4.6 + 7.5 + 11.8 + 15.0 1 + 12.7 + 1.8 + 13.8 + 13.8	34.8 37.8 38.1 40.3 33.5 29.8 27.8 28.3 32.5 30.7 31.2 39.5 7 39.5 7 37.7 7 34.0 27.9 25.6 33.5 34.6 35.6 46.0 30.7 36.6 46.0 30.7	25. 3 25. 5 23. 2 28. 4 23. 0 15. 1 15. 1 20. 4 13. 9 26. 4 26. 7 21. 2 16. 0 10. 3 6. 0 11. 6 11. 1 11. 1 18. 9 9. 9 9. 9 9. 9 28. 2 30. 5 18. 1 18. 1 19. 5 19. 6 19.	48 566 555 533 50 411 353 388 422 412 419 543 551 553 560 500 446 466 558 560 446 446 446 447	9 10 14 17 17 10 -3 3 -1 1 2 -8 -4 -4 -23 -14 -23 -6 -9 -14 -23 -8 -12 -25 -10 14 34 -5 5	7. 05 4. 84 6. 21 4. 51 4. 51 2. 79 3. 03 1. 88 2. 26 3. 46 1. 46 1. 77 1. 66 1. 04 0. 74 1. 44 0. 08 0. 26 0. 15 0. 04 T. 0. 05 0. 18 0. 11 T. 0. 25 1. 65 3. 66	+2.02 +0.21 +1.09 -0.53 -0.87 -0.19 -1.03 -0.19 -1.03 -1.14 -1.58 -1.87 -1.01 -1.48 -3.24 -3.24 -0.79 -0.65 -0.47 -0.47 -0.52 -0.53 -0.53 -0.54 -0.55 -0.54 -0.55	7. 12. 6.6 6.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	



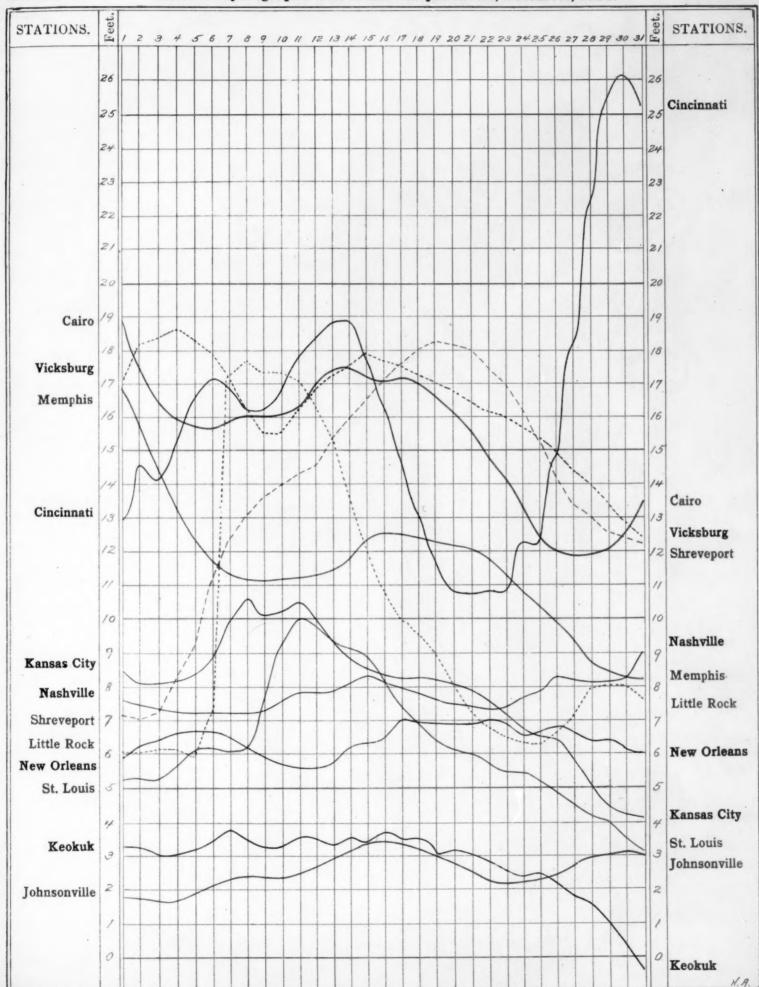
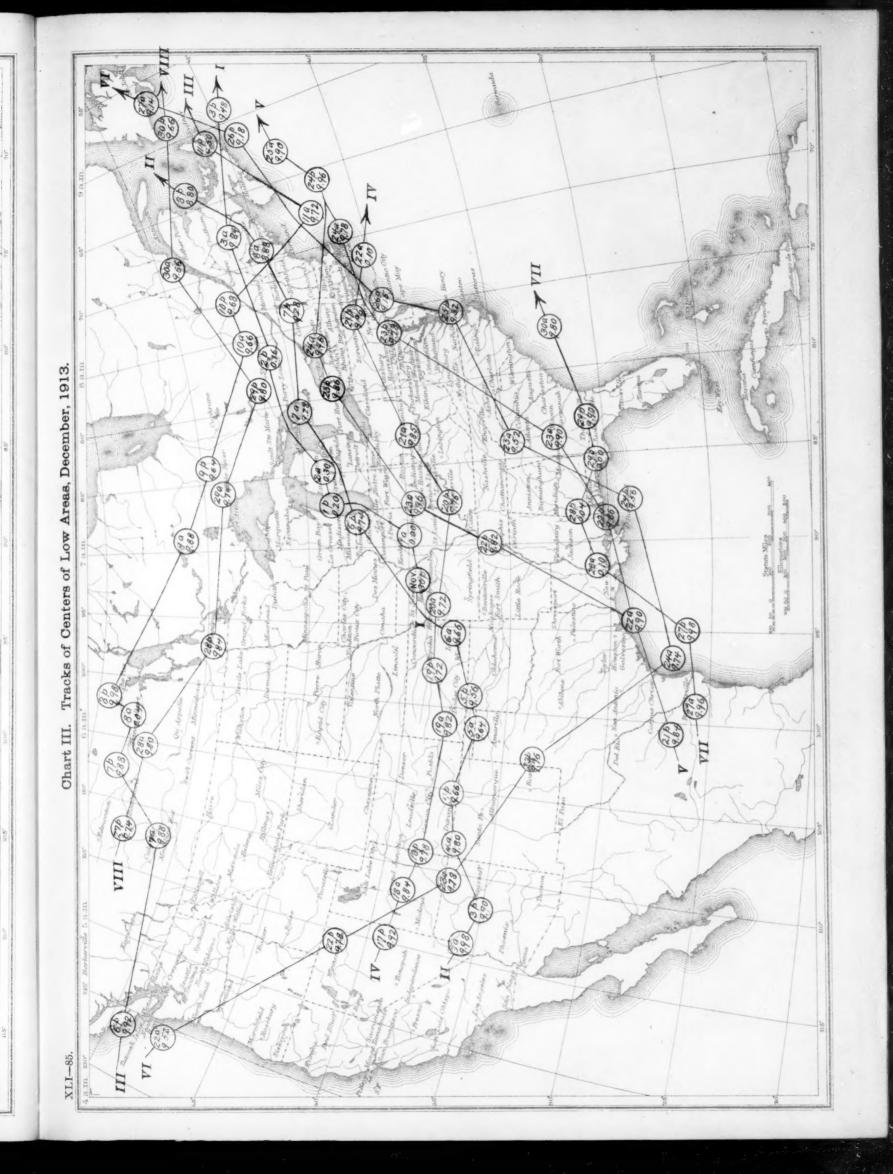


Chart III. Tracks of Centers of Low Areas, December, 1913.



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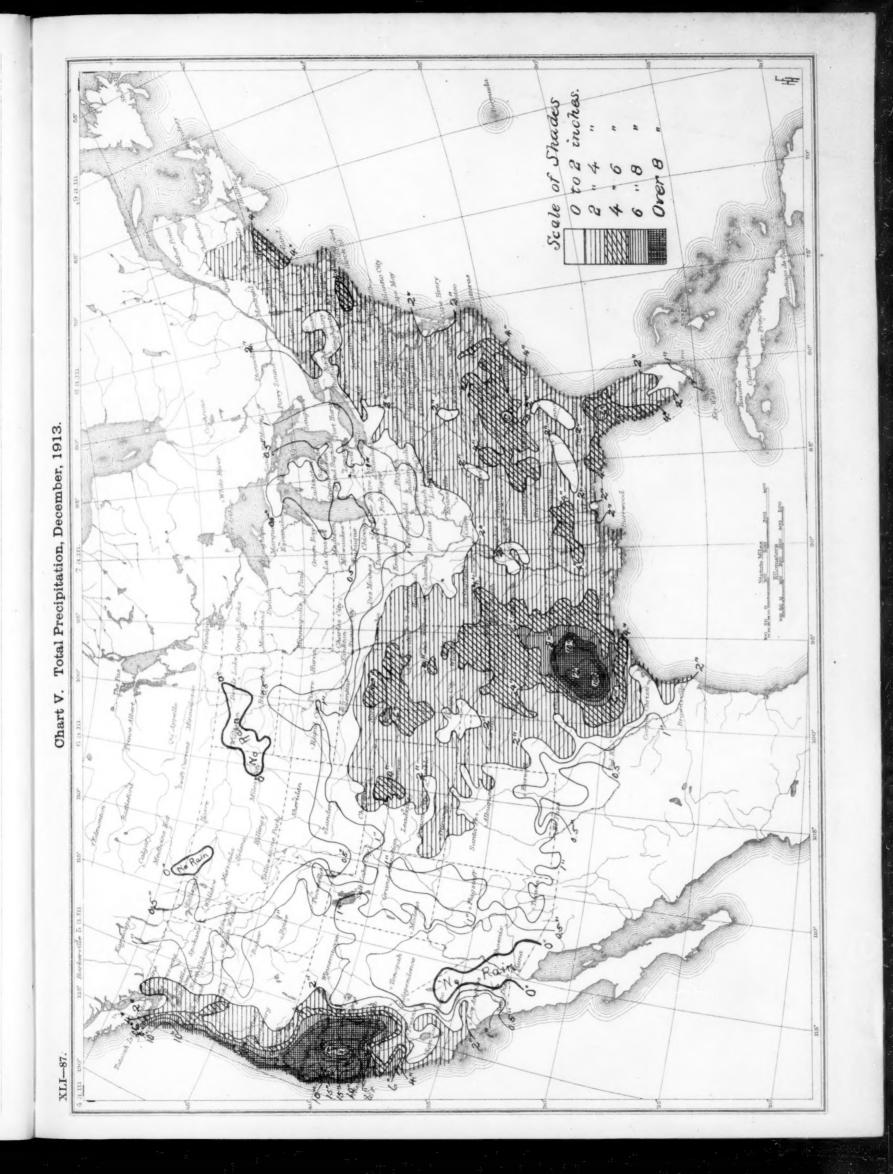
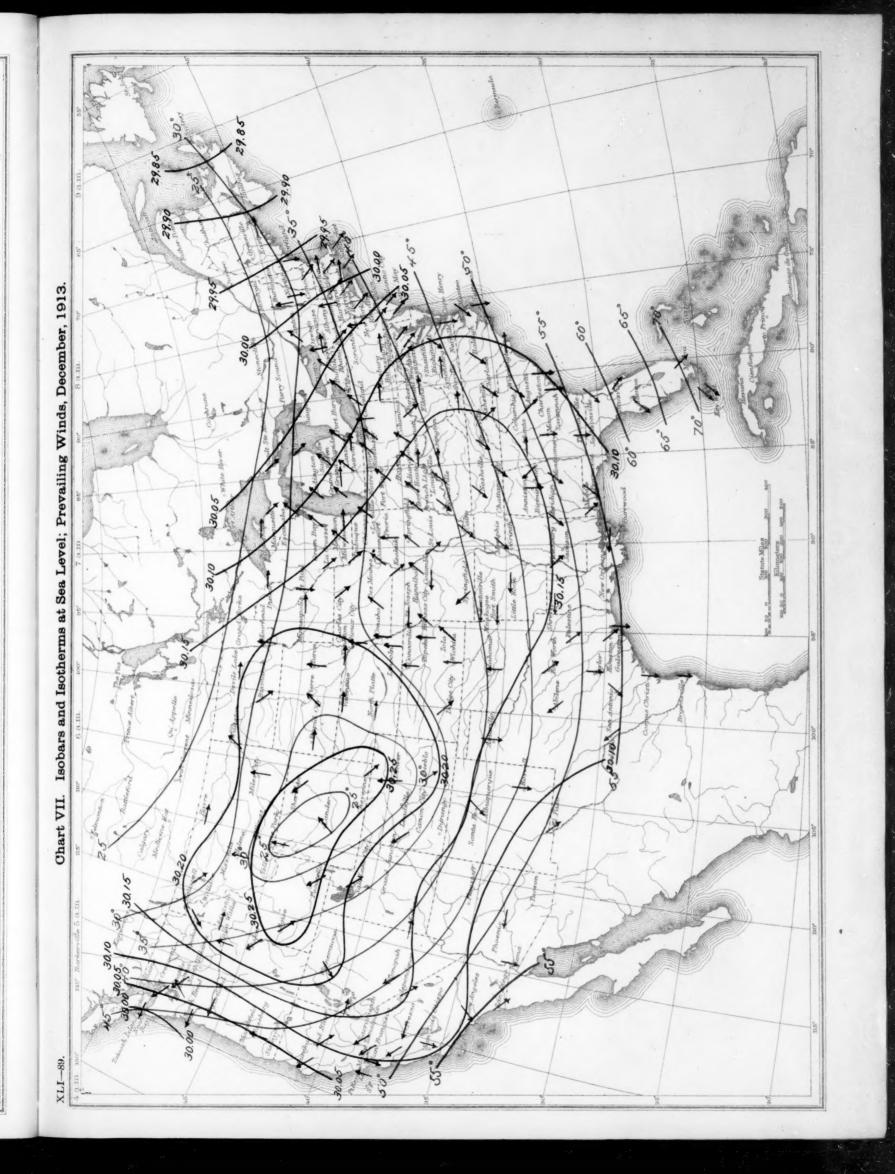
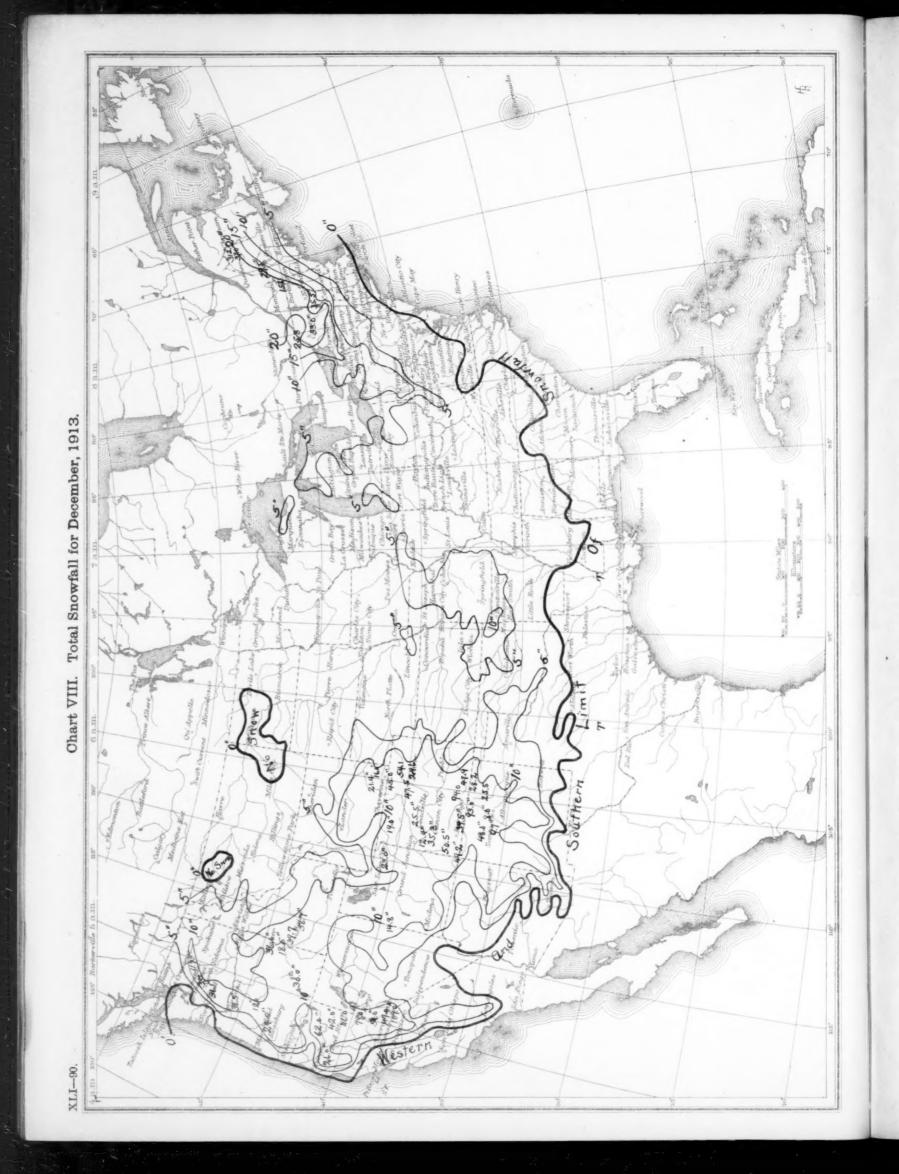
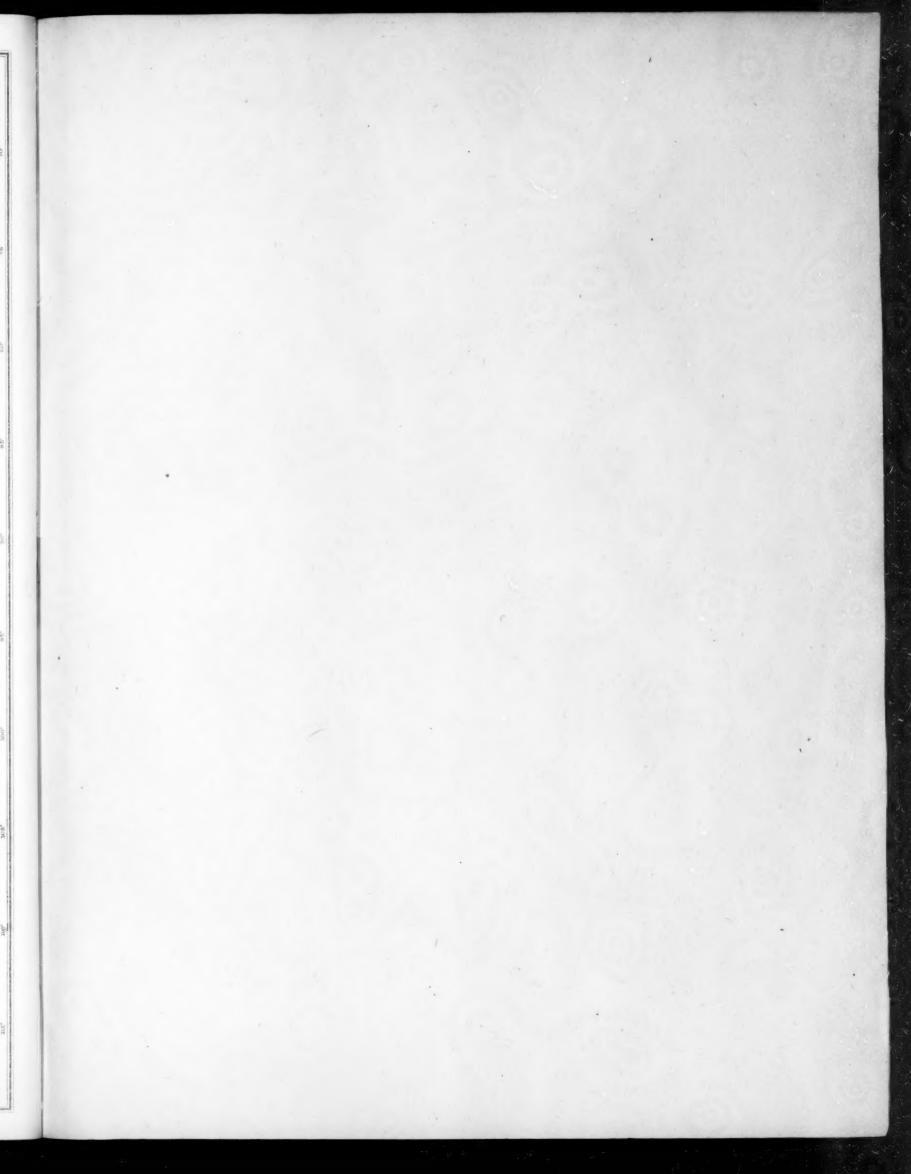


Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, December, 1913.









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## U. S. DEPARTMENT OF AGRICULTURE WEATHER BUREAU

CHARLES F. MARVIN, Chief

MAR -6 1914

# MONTHLY WEATHER REVIEW

VOLUME 41, No. 12

DECEMBER, 1913



WASHINGTON
GOVERNMENT PRINTING OPPICE

## DECEMBER, 1913.

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## PUBLICATIONS OF THE UNITED STATES WEATHER BUREAU.

The following publication, numbered in series, has recently appeared:

W. B. No. 519. Bulletin Y. The Ohio and Mississippi Floods of 1912.

W. B. No. 520. Bulletin Z. The floods of 1913 in the rivers of the Ohio and lower Mississippi valleys.

W. B. No. 525. Monthly Weather Review for December, 1913, Vol. 41, No. 12.

Persons or institutions receiving the Monthly Weather Review free should send in exchange a copy of anything they may publish bearing on meteorology, addressed "Library U. S. Weather Bureau, Washington, D. C.," in order that the monthly lists of current works on meteorology may be as complete as possible.

BACK NUMBERS.—Recipients of the Review who do not wish to retain this or other publications of the Weather Bureau, but are willing to return them, will confer a favor by notifying the "Chief of Bureau." Do not destroy

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Copies of the Monthly Weather Review may be procured from the Superintendent of Documents, Government

Printing Office, Washington, D. C., at 35 cents each; subscription price, per volume, \$4.

SPECIAL NOTICE.—The surplus stock of the Weather Review for OCTOBER and DECEMBER, 1910; JULY, 1909, JANUARY, 1911, and MARCH, 1912, is exhausted. Anyone having no further use for those issues will confer a favor by sending them to the Weather Bureau office in Washington, marking the package, "For Printing Division." A frank to cover postage on such package will be sent upon request.

The entire stock of the INDEX to the Monthly Weather Review for the year 1911 is exhausted. Anyone receiving the Review who may have no use for the 1911 INDEX is urgently requested to mail the same to the

Weather Bureau Office in Washington, marking the envelope "For the Climatological Division."

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